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ABSTRACT

This report presents the results of a study conducted by the Educational Priorities Panel (EPP) to determine what educational and support services New York City vocational education students receive, and to examine the characteristics of vocational education programs in city high schools. The two fields chosen for in-depth examination were data processing, offered primarily in academic/comprehensive high schools, and cosmetology, offered primarily in vocational schools. Areas discussed in the report include: (1) program goals, structure, content, and variations; (2) the process by which students interested in vocational training choose an appropriate school; (3) issues such as the role of teachers, availability of support services and technical assistance, borough level planning, and cooperation between high schools and postsecondary institutions; (4) the relationship between schools and the private industrial sector; (5) availability of equipment and supplies for vocational education programs; and (6) program adaptation and access for special populations. Data on sex equity are also presented. Appended to the report are a description of the EPP study methodology, a proposed expenditure plan for 1982-1983 career education in New York City, information on curriculum, and brief descriptions of existing work experience programs. (GC)

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A Study of Vocational Programs

The Educational Priorities Panel

95 Madison Avenue
New York, NY 10016
(212) 685-3563

Helen C. Heller, Coordinator

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Management Staff - INTERFACE

251 Park Avenue South
New York, NY 10010
(212) 674-2121

Stanley Litow
David Lebenstein
Robin Willner
Steven Redfield
Susan Amlung
Sandra Moore

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INTRODUCTION

What do New York City public school students face as they try to prepare for a career? First, they must choose a high school course of study. They must sort through almost 600 programs listed, but inadequately described, in the High School Directory, with little assistance from knowledgeable counselors. Hoping to work after graduation, they may inadvertently choose a program geared mainly to preparing students for college. Once in high school, they may find that there is little access to up-to-date equipment or texts, and that trained teachers in new technologies are in scarce supply. Expecting practical preparation, many will never be exposed to a real work situation, and they'll receive little information or guidance on finding and keeping a job. Finally, despite many students' desire to take intensive programs, they may find when they get to the schools of their choice, that there are too few courses offered in their field to leave them with anything but minimal career preparation.

This is a discouraging experience for young people who will have to overcome the current astronomical youth unemployment rates. Although New York City public schools are expanding their career training programs to meet the critical need for job preparation, to encourage students to stay in school, and to improve attendance, many programs are not meeting these goals.

Because of the growth and importance of vocational education, both to the city's young people and to its economy, the Educational

Priorities Panel decided to look at high school occupational training programs. A follow-up to an earlier EPP study, Help Wanted (1980), which examined the central management and administration of these programs, the current study focuses on the schools themselves, to see what services students receive, and what these programs are really like.

From looking at the central structure, Help Wanted had concluded that the overall picture of vocational training programs was very uneven. The numerous strong programs and acclaimed schools were more the results of the efforts of individuals than of system-wide policies. The goal of this study is to pursue the problem areas identified earlier and find their extent, causes and possible remedies. These issues are:

- tremendous variation in the structure and content of programs from school to school;
- inadequate information and guidance provided to students to choose among programs;
- inadequate links to industry;
- limited access to occupational programs by special populations and boys and girls interested in entering non-traditional occupational areas;
- outdated or inappropriate equipment, or machinery that was not installed.

We did not attempt to evaluate the programs' effectiveness. Only a longitudinal study that followed the students after graduation would accomplish that. Whether youngsters are adequately prepared to work, whether they find and hold jobs in their fields -- those are the ultimate tests of any vocational training program. However, while no guarantee of students' future success, a program's curriculum, its equipment, the preparation of its teachers, the depth and variety of the courses, and its links to industry, all serve as indicators of its quality. Industry

participation in vocational education is especially important, not only to strengthen the programs themselves, but also to acquaint employers with public high school students and raise the credibility of a public school education in their eyes.

We selected two program areas to examine in some depth. We looked at data processing programs, one of five clusters within business education. (We did not include computer literacy courses because they are not intended to offer occupational training.) Business education programs have the largest student enrollment of any of the occupational areas, and the city's demand for skilled, clerical labor dictated that we study one of the business concentrations. The automation of business and industry and the development of more affordable computers made data processing a reasonable choice. We also studied cosmetology, in part because it had been chosen by the Board of Education as one of the first areas to undergo its "accreditation" process (described on page 44-47), a move to establish minimum standards among all programs in one occupational area.

Among the other reasons for the choice of these two programs are that both were described by Board of Education officials as typical of the range of occupational offerings, and they exhibit many of the variables we wanted to examine. First, cosmetology is offered primarily in vocational schools and data processing is mainly in academic/comprehensive schools. Also, they are operated by two different Bureaus of the Office of Career Education (OCE).*

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* The Office of Career Education is divided into six bureaus, each responsible for one or more occupational areas. They provide technical expertise and coordination of programs for the high schools.

Finally, their study is particularly instructive because one is well established and highly standardized while the other is rapidly evolving and varies widely from school to school. Beyond the specific characteristics of these two programs, they share with all other programs a common structure, central administration, and goal. We have tried to focus on those problems and strengths that are not peculiar to these two programs, but are to be found in many others as well.

To conduct this study, our research team spoke to administrators, teachers, support staff and students in 48 schools, personally visiting 37 of them. They also interviewed central Board of Education personnel and representatives of 65 private firms specializing in the two occupational areas we studied.*

In the schools, they examined program goals and missions, range and number of course offerings, curriculum and program design, skills taught, admissions to programs, teacher recruitment and training, support services, and information students receive about programs. EPP members were particularly concerned about the ability of students to choose the program that best meets their needs and interests, given the wide range of occupational areas offered and the lack of standardization within occupational areas identified in Help Wanted.

The word "standardization" needs clarification. While the EPP believes that certain basic technical skills and knowledge should be offered by all programs in an occupational area, this does not mean that they must all be the same or follow a rigid curriculum. Differences in equipment, teacher expertise, and student needs make uniformity

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* See Appendix A for complete methodology.

unrealistic and unsound. But there must be assurances that all students in all programs are learning the necessary skills of that occupation on equipment that is appropriate, with teachers who are properly trained. Curricula can be designed so that teachers are given models and guidelines that they can adapt to their situation or particular equipment. As long as the core skills are incorporated into each program, principals should have the flexibility to develop programs that make the best use of unique resources available to them, both the school and the community. Furthermore, students must be made aware of the differences among programs so they can make the best choice. Not every program needs to prepare students for jobs. However, if it is "advertised" as career preparation, it should fulfill that promise.

Overall, this report demonstrates that cosmetology programs are quite consistent in goals, structure, content, equipment and links to industry, while data processing programs are not. Cosmetology is a well-established program geared to meet the requirements of state licensing, while data processing is a new, evolving field dealing with a rapidly changing technology. To some extent, therefore, the variations in data processing are unavoidable, even desirable, when new approaches are yet to be tested. However, there are many mechanisms in the cosmetology area for the exchange of information and assistance, for industry involvement, and for the establishment of minimum standards which could well be emulated by data processing administrators.

The report details significant differences, especially among data processing programs, in the following areas:

- goals and missions -- some courses are geared to job preparation; others lead to higher education (pp. 11-13);

- type of school and department placement -- placement of a program in a vocational or comprehensive high school or in an academic or business education department within a school often alters its goals and content (pp. 13-19);

- intensity of offering -- one-third of the schools we visited with data processing programs do not offer enough courses to meet the minimum recommended sequence (pp. 19-27);

- type of skills -- some programs emphasize technical skills and others concentrate on pre-vocational and work-readiness skills. Most students in data processing classes had very little understanding of the mechanics of getting a job (pp. 30-38);

- course content -- textbooks and equipment vary widely (pp. 27-30);

- access to equipment -- the opportunity for hands-on experience ranges from practically none to extensive (pp. 38-44).

Most distressing, the High School Directory, students' main source of information for choosing high schools and vocational programs, is inadequate, sometimes inaccurate, and gives no indication of these variations (pp. 48-52). Other guidance services are totally insufficient. And admissions requirements to similar programs vary without apparent reason (pp. 54-58).

The EPP has made the following major recommendations:

- Programs and courses with the same stated goals and missions must be comparable. Students must be informed of these in advance and not led to believe that a vocational course is meant to lead to a job upon graduation, when this is not the case.

- Programs offered as occupational programs should offer sufficient courses to fulfill curriculum standards for each occupational area. OCE should monitor programs to ensure an adequate number of course offerings.

- Whether an occupational program should emphasize technical or pre-vocational skills should depend on an analysis of the particular field; however, basic employability skills (attitudes, deportment, job-seeking skills) should be part of every vocational program.

- Work experience should be built into every vocational education program.

- The High School Directory must be accurate and complete, and indicate significant differences in programs among schools. Other sources of information for incoming high school students should be expanded.

- Standardized admissions policies for comparable programs should be established, and irrelevant requirements eliminated. Students should be allowed to transfer as long as they can complete a sequence and graduation requirements.

Other issues affecting the content and consistency of programs include:

- teachers -- there is an acute shortage of vocational teachers; data processing teachers vary widely in licensing and background;

- support services -- career counseling and job development and placement efforts are insufficient and poorly coordinated;

- technical assistance -- though most central bureaus offer some assistance, only some schools take advantage of it;

- borough planning -- recent efforts to establish borough advisory councils from the private sector are duplicative of existing efforts and divert attention from the need to analyze and coordinate resources among high schools on a regional basis;

- work experience -- despite numerous structures for industry involvement in vocational programs, work experience programs are inadequate to serve all occupational students.

In addition to several specific recommendations to alleviate these problems, the EPP believes that industry involvement must be encouraged and increased. For example, industy can:

- train teachers and provide part-time instruction;
- provide student exposure to the field and the world-of-work;
- review curriculum and equipment;
- provide on-site training for students;
- assist with job development and placement;
- provide work experience.

Despite a wide variety of programs, there are not enough job training slots to allow most students to participate. Industry has

not done all it could to assist vocational education and improve its own labor force, but the Board of Education has not been sensitive to the needs of business either, often failing to coordinate its outreach to specific businesses, making duplicative requests, and otherwise being unable to adjust its plans and programs.

A lack of equipment continues to plague occupational programs. The major reasons for this are shortages of funds, an absence of current inventories, poor communication and coordination between schools and central offices, a cumbersome grant and proposal process, a dearth of expertise on the latest technological developments, and a lack of clear priorities. These problems and restrictions on the use of funds often result in some programs receiving unneeded equipment, while others must forego badly needed purchases; sometimes new equipment is bought when old equipment could have been repaired had there been adequate funds for maintenance. Funds for supplies are also scarce, ranging from a few cents to a few dollars per student. Many schools resort to student fundraising and charging students for necessary kits, uniforms, lab supplies or books. A $100 limit on supply purchases without a central purchase order causes delays and limits bulk buying. New procedures for planning purchases need to be further simplified but are expected to yield greater efficiency in the future. However, principals still need to have greater authority to make purchasing decisions.

Access to vocational programs for special education students remains limited, mostly because the Office of Career Education and the Division of Special Education have not collaborated on planning programs to meet the needs of these youngsters. Furthermore, most

vocational teachers and administrators are unaware of the potential capabilities of youngsters with handicapping conditions or of adaptive teaching methods.

Occupational sex stereotyping continues. There is a lack of central support for getting boys and girls into nontraditional fields, although a few schools have made special recruitment efforts.

Despite these very serious shortcomings, our researchers were impressed by much of what they saw in the classrooms. While there are problems associated with many aspects of the occupational education system, there are good things happening in the classrooms and the schools. They report that teachers are dedicated, attendance and interest are high, and classes and shops engage students in meaningful activities.

We are confident that this report is an accurate reflection and synthesis of the information we collected, and hope it aids the Board, the schools, and industry in designing and implementing quality occupational education programs. As strong believers in the importance of vocational education, we urge that the issues we raise here be addressed quickly.

I. PROGRAM STRUCTURE, CONTENT AND VARIATION

What do students encounter when they enter vocational education programs? The EPP wanted to know what these programs are like and how they vary from school to school. Help Wanted had found an enormous range in content and quality. We recommended then that a core of skills and knowledge should be common to all programs in an occupational area, while still allowing schools to tailor programs to their particular student populations. This time our researchers went into the schools to look at the range in offerings, identify what causes or reduces this variation, and examine the move to accredit occupational education programs.

They found wide variations among programs, especially in data processing, which, to some extent, is to be expected, considering the nature of that field. Some of these differences are legitimate responses to different student needs, teachers' backgrounds, or texts and equipment. Others are clearly the result of different program goals, although students are not always made aware of these differences before entering the program. And others are the accidental differences that result from the program's particular location, the resources allotted to it, or the school administrator's interest in it. Efforts to share information and assistance, develop model curricula and establish minimum standards are insufficient to mitigate these differences. The EPP believes that, above all, students must be assured that they will receive the basic skills necessary to prepare for a particular occupation, and that they should be able to make high school and career choices on the basis of full information.

This latter point is described more fully in Chapter II. In this chapter, we examine program structure, content and variation. We have looked at the following elements of the programs:

- goals and missions;
- school placement;
- department placement;
- intensity of offering;
- course content;
- types of skills;
- equipment;
- accreditation.

1. Goals and Missions

What are the purposes of occupational education programs at the high school level? Should they prepare students to enter the job market or go on to college and further training? Should they provide intensive preparation in technical skills or merely serve as explorations into possible careers?

There were a variety of answers to these questions among school staff, central Board administrators, industry representatives, and students.* The only thing on which everyone agrees is that students who enroll in occupational programs should leave high school with marketable skills, able to get a job if they wish. In fact, however, this goal is not addressed in all vocational programs. Many people also stress the need to provide students with the option of continuing their education.

Cosmetology programs all lead to the New York State Licensing Examination. Virtually all the students take the examination and at least 85 percent of the students in each high school pass. Most schools achieve a 90 percent passing rate. Cosmetology programs

* See Appendix B for OCE's Goals Statement

prepare their students for jobs after high school. Students may also go on to college.

In all but one school, persons connected with cosmetology programs -- administrators, teachers, and students -- said that any student who wanted a job could get one. They are most likely to work in beauty salons and department stores -- jobs using the manual and technical skills of the trade, rather than positions in sales, marketing, or research in the large cosmetics corporations.

In general, data processing programs stress further training and the need to go on to college to advance in the computer profession. However, data processing programs offered in the business education departments are more likely to provide skills leading to employment immediately after high school than computer courses offered in academic programs, which make no such claims.

Entry level jobs in data processing include data entry clerks, junior operators, and junior programmers. Of these, the latter two may require further training, especially since the job market for entry level programmers in the New York City area is now very crowded. Teachers and administrators recognize that entry level opportunities are limited, and thus serve their students well by directing them to college. A negative effect of this, however, is that they gloss over the question of jobs, career paths, and the development of marketable skills.

As a result, students have unclear notions about the career paths open to them, and how to define and reach career goals. Even cosmetology students, who on the whole had thought more concretely about their futures and who received more help from teachers in

considering their careers, were confused about or unaware of the range of options that might be open to them.

Certainly, data processing programs do not have to be designed to lead to a job if that is inappropriate for the particular program. But participating students should be aware of the programs' goals and missions and not be led to believe that they can secure a job upon completing the high school course if that is not the case.

2. Vocational vs. Academic/Comprehensive Schools*

Traditionally, vocational programs were offered in the vocational high schools, whose physical plants were equipped with shops and machinery. Shop classes were double periods (two periods back-to-back). The Office of Career Education still defines vocational and occupational programs as two-year courses which meet for a minimum of 10 periods a week (but not necessarily double periods) and provide entry level skills. The terms vocational and occupational programs are used interchangeably in this report to refer to this definition.

More recently, career training has been introduced as an integral part of every high school. Whether the program is offered in a vocational or an academic/comprehensive high school, the EPP believes it should meet the same standards as defined above for all vocational

* Of the 109 high schools in New York City in 1982-83, 22 are vocational schools, 68 are "academic/comprehensive," 6 are "educational options" schools (which have distinctive programs and a mix of students who achieve at varying levels), 4 are specialized high schools, and 10 are alternative schools. Vocational schools date from a time when students were tracked into academic, vocational and commercial (or general) programs, and received different diplomas. In 1965, the Board decided to eliminate this system and began to make all high schools "comprehensive." Six vocational schools were closed, but the emphasis now is on equipping all schools to offer both academic and occupational preparation.

programs.

In the past, business education courses were offered exclusively in academic high schools, and were intended for those who sought jobs rather than college after high school; vocational schools offered the trade and technical programs more traditionally perceived as "vocational" training. Now, however, academic/comprehensive schools are equipping shops and labs to provide the training that used to be the purview of vocational high schools alone. At the same time, vocational schools are offering business education courses. This crossover between categories of schools is an informal approach to making all schools "comprehensive," as the Board intended when it decided to phase out vocational schools in 1965. Although vocational schools are no longer being closed, the distinctions between the schools are breaking down. Even so, whether academic/comprehensive schools have the capability to offer the same kind of intensive occupational training that vocational schools traditionally offered has frequently been questioned.

Our research team visited 25 academic/comprehensive schools, three educational options schools, eight vocational schools, and one alternative school. They found that academic/comprehensive and vocational schools differ in many respects -- in the emphasis they place on going to college versus working, and in the support services leading to one or both options; in whether they offer double period concentrations and enough different courses for at least a two year sequence; and in attitudinal differences about their mission in regard to career preparation. But there was nothing to preclude academic/comprehensive schools from offering

quality occupational education programs, and in fact some do.

An example of an academic/comprehensive school that has succeeded in offering an intensive vocational program is Sarah Hale, which was a vocational school until 1974. This school offers double periods in its cosmetology and other vocational programs, allocates teachers to its expanding cosmetology program, ensures that students can work in the field, and advertises and recruits for the program. It is certainly as capable as a regular vocational school of providing intensive training leading to entry level employment.

An interesting example of an academic/comprehensive school offering an occupational education program is Lafayette High School, which started a 10-period, two-year cosmetology course for its special education students was then demanded by non-handicapped students as well. While it makes no claims to lead to the New York State Licensing examination as all other cosmetology programs do, it offers vocational education as defined by OCE and the federal Vocational Education Act (VEA).

However, the failure of some academic/comprehensive schools to provide adequate vocational programs is illustrated by some data processing programs. Out of the 31 schools we visited, only two educational options schools offer intensive business specializations with double period classes and two vocational schools provide students with double periods (only one of them for two years). More learning and hands-on experience can be provided in a double period than in two, non-adjacent single periods. In fact, many schools do not offer enough different courses so that a student can take 10 single periods a week for two full years (see Intensity of Offering section,

pp. 19-27). All academic/comprehensive schools should adapt their scheduling and teacher time to provide students with the benefit of double period classes.

Academic/comprehensive high schools can and should offer vocational programs that meet OCE's definition, providing that:

- the physical plant and shops are properly equipped;
- there is commitment by the administration and guidance office (in policy and resource allocation) to provide information about jobs as well as college;
- enough different courses (preferably double periods) are offered for at least a two-year concentration;
- connections to industry exist, to keep the program up-to-date and the curriculum relevant, and provide work experience opportunities for students.

3. Departmental Placement in Data Processing Programs

Data processing programs may be offered as business education courses (under the aegis of business education departments), or as academic courses (within math, science, or computer science departments). Of the 31 schools we visited, 11 have data processing programs only in the business education department. One school has programs with computers only in the math department, 17 have courses offered in both business education and math, one has courses offered in both business education and computer science, and one school has a separate computer science department which coordinates all business and academic computer courses.

In general, courses and programs entitled "Data Processing" come under business departments, while those called "Computer Science," "Computer Math," or "Computer Technology" fall under academic departments. The programs listed in the 1981-82 High School Directory under

"Data Processing" refer only to those in the business area; however, there is nothing that made this clear to students or indicated which actually fit the definition of an occupational program. In the 1982-83 Directory, the programs are listed under the title "Computer Science" and appear to include both business and academic-related courses; however, nowhere in the book is this distinction made for students. (See later discussion of information students receive, pp. 48-49.)

The distinction is important because academic and business computer courses have different goals, different course content, and different equipment. Most academic computer courses make no claims about preparing students for entry level jobs or even computer careers, but are very clear that they expect students to go on to college. Course content focuses on computer literacy, programming, knowledge of the math and science computer languages, and facility with the smaller more affordable microcomputers. Because these smaller machines are priced anywhere from $800 to $3,000, depending on capacity and capabilities, schools can usually own more of them, thus increasing the likelihood that students will get sufficient hands-on experience.

In contrast, business-education-sponsored courses are mandated by OCE to provide students with entry level skills. They also are supposed to follow the stated goals for all occupational education programs of providing the option to go to college or get a job upon graduation. However, recognizing that the number of entry level positions for high school graduates is limited and reluctant

to confine students to the lower level keypunch jobs, business computer teachers often stress the need for further training to advance in the field. Teachers and administrators expect most of their students to continue studying business education at local two and four year colleges.

Course content in business education data processing focuses on data entry, computer operations, computer languages used in business, and in some schools, programming in the business languages. These languages usually require the larger, more expensive equipment, as does instruction in computer operations. A self-contained unit of at least the medium-sized (called "mini") category is needed. This means that either a school must have terminals connected to the Board's large computer (used also for administration, and thus not always available for student use), or self-contained units, which have cost between $30,000 and $120,000 apiece. New technology is now introducing smaller middle-sized computers for between $6,000 and $50,000, but all these machines are still more expensive than the personalized computers. The result is that students in these programs may have limited opportunity for hands-on experience. The differences in programs' access to equipment is discussed in greater detail on pp. 38-44, and documented in Table 1.

In those schools where computer courses are offered in both the business education and academic departments, and in those where business education is the sole provider of computer courses, business education staff complained that they were not accorded the same status within their schools as the academic departments.

This tension was explicitly expressed by business education personnel from at least six different schools, who said that the elective nature of their courses required continuous recruitment of students, that guidance counselors often steer the brighter students away from enrolling in business education courses, and that support and guidance services in the school emphasize college placement but not work preparation and acquisition of marketable skills.

The EPP believes that the location of a program in an academic or business education department should not substantially affect the content and purpose of the program, except where differences are explicitly stated. Courses with the same goals and descriptions must be comparable.

4. Intensity of the Offerings

In our earlier study, the EPP found a great range from school to school in how many courses were offered, for how many periods, for how many years.

Intensity is an important consideration in both data processing and cosmetology. In cosmetology, the requirement that students have 1,000 hours of classroom instruction to take the licensing exam, and the likelihood that students will work in the field on graduation demand a minimum concentration of 10 periods a week. In data processing, evaluators and industry experts say it takes several hundred hours of instruction to properly learn a computer language as well as sufficient time for hands-on experience at the computer. The sharing of computers among three, four, or more students increases the amount of class time necessary for each student to learn to operate the computer.

The frequency of contact between teacher and students has other, perhaps more important, effects than simply what or how much students learn. Especially in the traditional vocational structure, where students are with the same teacher for large blocks of time, teachers are often closely involved with their students' lives. Given the shortage of adequate guidance services and job placement counseling, this close relationship has proved critical to keeping students in school, teaching them appropriate work behavior, and increasing their chances for a successful future.

Most educators recognize the importance of a concentrated program to provide career preparation. In addition to OCE's 10 period a week, two-year standard, the State Education Department has established a 10 period a week minimum requirement for all occupational programs to be eligible for state and federal financial aid.

The EPP believes that these standards should apply to all occupational programs, except where an assessment of the field or of student needs reveals that different standards would be more appropriate.

All eight cosmetology programs offer a three year sequence with at least 10 periods a week of shop and instruction. All except one increase to 15 and 20 periods in the 11th and 12th grades. Thus, although there is some variation in intensity, the state-mandated minimum concentration for licensing is achieved by all schools.

There is a great range in the intensity of data processing programs (Tables 1 and 2). The Bureau of Business Education recommends a two year sequence of a total of 10 periods a week including at least five periods each semester in data processing and the rest in related electives.* Suggested electives include accounting, business math,

* See Appendix C for Curriculum Structure.

TABLE 1

DATA PROCESSING PROGRAMS
Listed in High School Directory vs. Intensity of Offering vs. Access to Equipment

Schools Visited (A thru EE)	Listed in HS Directory 1981-82	Listed in HS Directory 1982-83	Number of different courses offered/departmt.	Maximum years of Business Ed. sequence (5 periods/week	# periods per week per course	Access to equipment: # of students per machine
A	X	No	6	new program	5	2:1
B	X	X	6 BE 3 math	2	5	3/4:1
C	No	X	3 math 1 BE	1 1/2	5	2/3:1
D	No	X	4 math 4 BE	2	5	2/3:1
E	No	No	incomplete data	new program	5	incomplete data
F	X	X	3 BE 2 math	1 1/2 1	5	problems getting equip. operative
G	X	X	8 including Business Insti. & holding power program	2 + Business Institute	5	6/7:1
H	X	No	4	2	5	15:1
I	X	X	4	2	5	15/30:1
J	X	No	1	1/2	5	20:1
K	No	X	3	1 1/2	5	10:1 key punch 30:1 micro
L	X	No	4	2	5	30:1
M	X	X	3 in spring	1	5	6:1
N	X	X	1 in spring	1 or 1/2	5	5/6:1
O	X	No	1	1	5	15:1
P	X	X	11	3	5 in 10th 10 in 11th & 12th	2/3:1
Q	X	X	9	3	10	Beg: 13:1 key-

TABLE 1 (continued)

Schools Visited (A thru EE)	Listed in HS Directory 1981-82	Listed in HS Directory 1982-83	Number of different courses offered/departmt.	Maximum years of Business Ed. sequence (5 periods/week	# periods per week per course	Access to equipment: # of students per machine
R	X	X	spr. 4 BE " 5 math	3	5	6:1 keypunch 2/3:1 micro
S	X	X	6	3	5	2/3:1 micro
T	X	No	---------incomplete data---------		5	incomplete data
U	X	No	2	1	5	incomplete data
V	No	X	1 Bus. 6 math	1/2 - 1 3 +	5	6:1 beginning classes 2:1 micros
W	X	X	7 including exploratory	3 + explor.	10 - 9th 15 - 10th 20 - 11/12	5:1
X	Listed under the wrong borough	X	2 + Business Institute	1	5	9:1
Y	No	X	6	3 incl. intro. + DP seminar/ work experience	5	6:1
Z	X	No	3 BE (4 in spring)	1 1/2 BE only	12	2:1
AA	X	X	6 BE 4 math	3 2	5	7:1
BB	X	X	6	3	5	6:1
CC	No	X	2	2 - next fall	5	12:1
DD	X	X	4 BE 5 math	2 BE 2 1/2 comp.sci.	5	12:1
EE	No	X	2 BE 1 math	1 1/2	5	10:1 4:1

Key: BE = Business Education
2/3:1 means two or three students to each machine

Source: Interviewees at each school

TABLE 2

DATA PROCESSING COURSES - Spring '82

School*	Course Titles	# of Pupils	# of Classes
A	Comp Math	161	6
	Int. Comp	141	5
	BASIC 2	25	2
B	Intro to D-P	35	1
	DP	170	5
	DP	59	2
	DP	32	1
	DP	29	1
	Computer Math	68	2
	Computer Math	69	2
	Computer Math	32	1
C	Basic Programming	200	6
	Adv. Programming	68	3
	Computer Projects	9	1
	Business Data Proc.	30	1
D	Computer Math 1	86	3
	Computer Math 2	26	1
	Business Ed. Comp.	75	2
	Business Ed. Comp.	84	3
E	Comp. Math 1	21	1
	Computer Data	195	5
F	Comp. Math	31	1
	Comp. Math	28	1
G	D-P COBOL	65	2
	D-P COBOL	34	1
	D-P RPG	103	3
	D-P RPG	29	1
	Adv. Comp. Op-TABS	32	1
	Data Proc. RPG-TABS	32	1
	Intro to Comps-Holding Power	26	1
	Intro to Comps-LPC	37	1
H	Data Proc. (2)	50	2
	Data Proc. (4)	16	1
I	Computer Math	40	1
	Comp. Prog. RPG	134	5
	Comp. Prog. COBOL	50	2
J	Computer	54	2
K	DP 1	36	1
	DP 3	32	1
L	Comp. Prog.	25	1
	Comp. Prog.	22	1
	Comp. Prog.	21	1
	Comp. Tech.	29	1
	Comp. Tech.	25	1
	Comp. Tech.	22	1
	Comp. Tech.	21	1
	Int. Data Proc.	45	2
	Comp. Prog. 2 RPG	7	1
	Tech. Theory	29	1
M	Data Proc.	134	4
	Data Proc.	26	1
	DP COOP	28	1
N	Intro D-P	111	3
O	D-P	97	3
	Comp. Math	23	1
P	Comp. Math 1	31	1
	Comp. Math 2	29	1
	Intro DP-LGC	118	4
	Basic PRG 1	116	4
	Comp. Acct.	82	3
	RPG PRGM 2	85	3
	COMP APPL 2	213	7
	COBOL 2	213	8
	Key Punch	137	5

TABLE 2 (continued)

DATA PROCESSING COURSES - Spring '82

School*	Course Titles	# of Pupils	# of Classes
	Line	3	4
Q	Comp. Science 2	55	2
	D-P 1	100	3
	RPG 1	38	1
	COBOL 1	57	2
	COBOL 2	68	3
	Intro to DP	137	3
	RPG 1	47	1
	COBOL 1	48	1
	Comp. Literacy Marketing	64	2
R	Elec. D-P 1	65	2
	Elec. D-P 2	15	1
	Elec. D-P 3	17	1
	Comp. Math 1	108	4
	Comp. Math 2	89	3
	Comp. Math 3/4	21	1
	Comp. Math 5	15	1
T	Data Processing	170	5
	Data Processing	24	1
	Comp. Literacy	68	2
U	Data Processing	201	6
	Data Processing	46	2
	Keyboard	46	2
	Data Proc. Co-Op	22	1
	Computer Service	30	1
V	Comp. Electronics	23	1
	Cal. Keypunch	65	2
	Data Proc.	106	3
	Comp. Algebra 2	46	2
	Computer Concepts	180	5
	BASIC	142	5
	FORTRAN	16	1
	COBOL	16	1
	Adv. Basic	20	1
	Comp. Lab	132	5
W	Adv. Data Proc.	26	1
	Inter. Data Proc.	21	1
	Basic Data Proc.	68	2
W	XPL Data Proc.	60	2
	XPL Word Proc.	61	2
Y	RPG	141	4
	COBOL	33	1
	Comp. Math	55	2
	Comp. Math	76	3
	Comp. Math	30	1
Z	Computer Math	207	6
	Computer Lab	76	1
	Data Proc. Comp. Programming	50	2
AA	Comp. Math 1	37	2
	Comp. Math 3	29	2
	Comp. Literacy	24	1
	Data Proc.	61	2
	Data Proc.	27	1
	Comp. Prog. R	90	3
	Comp. Prog. R	31	1
	Comp. Prog. CH	37	1
	Comp. Prog. CH	34	1
BB	Comp. Math	143	5
	Comp. Math	61	2
	Comp. Math	17	1
	Comp. Project	27	1
	Comp. Prog.	136	4
	Comp. Prog.	57	2
CC	Comp. Math	53	2
	Comp. Math	46	1
	Bsnss Comp D-P	32	1
	Co-Op Comp D-P	51	1
DD	Comp. Math	79	2
	Comp. Math	26	1
	Business Comp.	150	4
	Business Comp.	38	1

TABLE 2 (continued)

DATA PROCESSING COURSES - Spring '82

School*	Course Titles	# of Pupils	# of Classes
Line		3	4
EE	Comp. 1	129	3
	Comp. 2	35	1
	Comp. Prog. Math	81	3
#1	Regents Com. Math	32	2
	BIL	37	1
	Computer	70	2
	Computer Lab	37	1
	Data Processing	79	2
	Bus. Math Reg. Comp.	39	2
	Bus. Math Reg. Comp.	81	2
#2	D-P 1	89	3
	D-P 2	29	1
#3	Comp.	204	8
	Comp. Lab	42	2
	CMSP	23	1
	Comp. 1	62	2
	Comp. 2	88	3
	Comp. 4	12	1
	Comp. Lab	42	2
#4	Comp. Math	25	1
	Data Proc. 43	52	2
	Data Proc. 41	72	2
	Computer 1	76	3
#5	Comp. Math	27	1
	Key Punch	20	1
	Programming	20	1
#6	Data Proc.	40	1
	Data Proc.	119	2
#7	Data Proc. COBOL	77	2
	Comp. Analysis	61	2
	BASIC	66	2
	FORTRAN	17	1
	COBOL	29	1
	Math Data Proc.	29	1
#8	Comp. Prog.	57	2
	Micor Comp Prog	106	3
	Micro Comp Prog	21	1
	Data Proc.	58	2
#9	Comp. Lab	204	8
	Comp. Math	98	3
	Comp. Math	34	1
	Comp. Prog.	73	2
	Comp. Prog.	20	1

SOURCE: High School Organization Charts

* Lettered schools were visited by the EPP research team.

word processing and other business education courses. The selection of electives available in a school will greatly affect students' scheduling ability and their ability to complete the recommended sequence). (The Bureau's suggested program accounts for all academic requirements with an additional year of math and foreign language, demonstrating it is quite easy to fit an occupational concentration into the normal academic schedule.)

The first problem is that the vast majority of data processing courses are single periods. Of the 31 data processing programs our research team visited, only four schools offer double periods, guaranteeing that a student will take 10 periods a week.

More important, in two-thirds of the schools it is not possible for a student to put together a two-year sequence of 10 single periods a week of data processing courses. And one-third of the schools fail to offer even the minimum requirement of five periods a week for two complete years. Of 31 schools, only 10 offer enough data processing courses to fill 10 periods per week for two years. Three of these are schools in which courses in the math department would be needed to fill out the sequence. Nine other schools offer the possibility of a two-year sequence of five periods a week of data processing courses; five of them offer 10 periods a week during one or two semesters and all nine offer 10 periods per week for two years including related electives. Eight schools have one or one-and-a-half year sequences in data processing, and therefore, even with electives cannot meet the recommended standard. Two other schools offer only one course in data processing; and one has one course in the math department and one in business education. Our researchers found no

evidence that these truncated sequences were based on an assessment of training requirements or student needs.

In all of the schools but the four with double periods, whether or not students manage to put together an intensive sequence depends on the total courses offered, the scheduling of those courses, and the advice they receive in designing their schedules. Our researchers had no way of finding out, nor does the Board currently collect information on, how many students are able to complete the suggested sequence.

The Bureau of Business Education has recommended a flexible curriculum structure for all business education concentrations to meet the 10 period a week/two-year sequence standard. The EPP believes that at least those minimum course offerings should be available at every school offering business education. Obviously, this does not preclude special short-term, intensive offerings geared to prepare students for specific jobs when the program has been designed with industry input.

Clear standards of intensity of offering should be established and enforced. OCE should monitor all programs advertised as occupational programs to insure that an intensity of courses adequate to meet these standards is being offered. Where programs are not meant to be intensive, they should be clearly labelled as such. Programming should allow for the scheduling of double or adjacent periods. Students must have the opportunity to take a two-year sequence.

5. Content

The content of cosmetology programs is fairly well standardized from school to school. Newly developed curricula (see Accreditation,

page 45) are in use at all eight programs; teachers are all licensed cosmetology teachers.

The cohesiveness and consistency of the cosmetology offerings can be attributed to a number of factors: the cultivation of industry, an active standing committee and advisory commission, curriculum projects dating back a decade, frequent workshops and demonstrations in the latest techniques, and dedicated teachers and administrators. One assistant principal who has years of industry experience and has held central positions in the curriculum development projects does a great deal of the coordination and leadership among the programs and he is responsible for much of the cohesion.

Despite the standardization of curriculum and cohesion among cosmetology programs, there is still a small degree of variation from school to school. While some variation is a positive response to the individual school population and the local commercial opportunities, other inconsistencies result from unevenness in the quality of teaching, job placement opportunities, and career counseling.

Two-thirds of the data processing programs offer at least the core curriculum developed by the Bureau of Business Education. But the actual course content, sequence, equipment, and teacher expertise vary greatly. There are as many approaches as there are "resident experts" in the schools. The lack of an organized network for sharing of information and expertise exacerbates the inconsistency of offerings from school to school.

In a field that is changing as rapidly as data processing, differences in course content are understandable. However, there are few mechanisms in place that would enable the courses to become

more consistent or to develop a consensus about the best approaches, texts, equipment, etc.

Data processing programs use different texts. Many staff people complained that existing texts are inappropriate to high school use, of poor quality, or simply too expensive. At least five teachers wrote their own texts and two more photocopied college books. Part of the problem is that, because the newer books are not on the approved New York State textbook list, the school must pay for them out of already scarce supply money. More important, most computer texts cost as much as the year's per pupil textbook allocation for all courses.

State textbook funds do not cover software at all, despite the state's oft-stated commitment to attracting high technology industry to the state. There is also no approved list of software -- the programs that make the computers perform given tasks. A list is being compiled by the Board's Computer and Science Information Unit. At least nine teachers design computer programs for their students to run. Thus course content varies because of differences in texts and software, and in the amount of money an individual principal is willing to allocate for them.

The EPP recommends that there be a process for circulating information on the quality and appropriateness of texts for high school use. Industry should be involved in setting guidelines for evaluating texts and software which allow for the rapid advances in the field. The state should revise its textbook funding regulations to cover software purchases and allocate additional funds for this purpose.

Finally, differences in equipment do cause a range in the con-

tent of data processing programs. (Also, see Access to Equipment, pp. 38-44) We do not expect all schools to have the same equipment, although some assistant principals said that minimum standards for data processing courses would force schools lagging behind on equipment to update their facilities. It is possible to teach students how different equipment would accomplish the same task in a different way, and emphasize the concept involved, rather than to teach specifically for the machine being used in that particular classroom. Many teachers said that once you learn one computer language and understand the underlying logic, it is easy to learn a second. Emphasis should be on the concepts and how to generalize from one application or piece of equipment to another, in order to minimize course differences due to equipment.

6. Types of Skills

Students in occupational education programs may learn technical skills, proper work attitudes, entrepreneurship and management, and basic literacy skills. How much emphasis any one category of skills should receive is a matter of intense controversy among educators, employers, and students, and stems from the disagreement about the mission of occupational education programs, as discussed earlier (pp. 11-13).

a. Technical skills. Most teachers in the programs believe that providing students with technical skills is the most important part of their job. "Technical skills are what make students employable," they say. "It gives them a leg up, a competitive edge in the job market." Staff suggested, and our researchers observed, that

gaining technical competency increases students' self confidence and reduces their anxiety about their futures. They believe that once a student masters the skills of one occupational area, learning another career area is much easier. Since workers of the future will probably make several career changes in their lifetime, this adaptability is important.

Those who support high levels of competence in technical skills also emphasize the need for "state-of-the-art" equipment. Nearly all the school personnel interviewed in computer and word processing programs asked for more and better equipment. They stressed they are training their students for jobs in the real world, and that hands-on experience is necessary to gain competence. Many did admit that some of the equipment could be less current, as long as there was at least one machine that was up-to-date. Then it would be possible to familiarize students with what is used in industry and to teach how to adapt the concepts from the old equipment to the new. Cosmetology teachers said that current equipment is essential to learning the newest techniques used in the salons. Students' chances of working upon graduation and increasing their salaries are increased by a knowledge of new equipment and techniques.

Some educators and many industry people feel that providing basic technical, or "pre-vocational," skills is the key, that what should be emphasized is the concept underlying the skill and how that skill can be adapted to other equipment or applications. Many feel that these basic technical skills can be learned on equipment that is less than current or "state-of-the-art," or even on simulated training devices.

What do employers say about this controversy? In cosmetology, attitude, appearance and work experience are the primary factors in getting most salon jobs. Good technical skills are important, although the manager of Soul Scissors feels that students do not leave school with very high level technical skills, and require on-the-job training once employed. However, graduates are employable with a license and the level of skills they have when they leave school. Students who have mastered highly specialized skills in black hair styling and cosmetology are in demand.

Few students entering the data processing field are able to fill data entry jobs with a high school diploma. For computer operator jobs in the federal government, a high school diploma is required, but many businesses prefer a community college or technical training institute degree, according to the Bureau of Labor Statistics' Occupational Outlook Handbook. Formerly, programming jobs depended more on facility than academic credentials, but now most positions demand a college degree.

Different types of firms involved in data processing and computers* require different technical and educational backgrounds of their new employees. Large corporations specializing in computers and data processing often have intensive training programs (though not necessarily in the city) and will hire people without experience, although most prefer a college degree. Consulting firms hire only high level, experienced programmers and systems analysts with college educations. Computer services require some degree of expertise,

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* We interviewed representatives of 9 large corporations, 10 consulting firms, 12 computer services, 19 banks and 14 insurance companies.

usually less than that of the consultants just mentioned; employees must be able to make a good presentation. But one consulting firm which used to hire trainees for these positions said, "In an economic situation when our clients have cut back, we can't place trainees with them."

Executives of seven data processing firms who hire high schoolers for entry level positions (mainly keypunch and data entry) said they looked primarily for good typing skills -- accuracy and speed -- as the only real technical requirement. When asked if familiarity with computers and data processing equipment was an advantage, one employer said, "Oh yes! It would be to everyone's advantage, and they'd get an increase in salary." Another said, "Yes, it's faster, easier. But we wouldn't want to have to trust a kid with a computer job." Keypunchers at one firm need "a good head on their shoulders," but there was no advantage to having a background in keypunch. Particularly in data entry work, many businesses commented that training on the job made more sense, because "each company has its own little idiosyncrasy." Thus, while having technical skills was seen as positive by some employers, they were neither a requirement nor an expectation for entry level data processing jobs.

• To resolve this issue of technical skills and up-to-date equipment, the EPP recommends that OCE conduct an analysis of each occupational area. The elements to consider include:

1. Whether students will be entering the job market upon graduation, and what kind and what level of skill they will need to do that successfully;

2. The job outlook in that field;

3. Whether students will be going on to further training in college, industry training programs, or technical training institutes, and what skills they need to gain access to any of these;

4. How capital-intensive the equipment is, and how necessary it is that the equipment be current;

5. What the opportunities for work experience are on "state-of-the-art" equipment at industry sites;

6. Whether industry provides training or prefers to hire already skilled and experienced workers;

7. Whether there are other benefits to teaching technical skills on current equipment besides immediate employment; for example, does it keep students from dropping out, or stimulate the learning of basic literacy skills.

We have analyzed cosmetology and data processing as examples of the kind of analysis that needs to be applied to all occupational areas.

- Cosmetology programs are training students for jobs after high school. The licensing exam requires a body of technical skills and knowledge. Students' ability to get jobs, especially in the burgeoning field of black hair styling and beauty, depends on staying on top of latest techniques. Linkages with industry are providing some on-site training, and many students work in salons while in high school. However, since the state requires 1,000 hours of classroom instruction, it is more feasible to offer training during this time in the school shops. Equipment, which is not terribly expensive, must be current and plentiful enough to permit all students adequate access.

  Thus in cosmetology, we recommend that the emphasis continue to be on the teaching of technical skills using up-to-date equipment.

- Data processing programs train students for a limited choice of entry level jobs. Most students are expected to go on to college to get further training. There is uncertainty about where the computer field is headng, what the job openings are likely to be, and how fast the field is expanding. At the moment, the New York entry level computer field is glutted

and almost no one is hiring high school students. New "generations" of computers are born every few months now, rather than every few years. Some equipment -- especially the larger capacity computers -- is expensive. Smaller computers are not as costly, but it is important that there be enough for students to have easy access to hands-on experience. Since this equipment can't easily be replaced with more modern equipment, it is more feasible to teach pre-vocational skills in data processing.

There are currently only limited opportunities for on-site job training, and it is doubtful that these can be increased enough to serve a substantial number of students. In the meantime, the schools bear responsibility for keeping students on top of the technological revolution. They don't need the most sophisticated equipment to do this, but they do need computers in the schools and in the classrooms.

Finally, students are really excited by computers. Some students who are failing all other subjects come in to work on the equipment on their own time. Because computers often require a good command of English and math, basic skills may improve.

Thus, in Data Processing, we recommend that the basic technical or pre-vocational skills be emphasized, but that there be opportunity for students with interest and ability to advance. Access to hands-on experience is very important in learning computers. But consistent use of "state-of-the-art" equipment is not necessary. Basic training on less expensive equipment with extensive hands-on experience for every student should be the first priority. We support the current criteria established by the Office of Data Processing which demand that new computer purchases be compatible with existing equipment and upgradeable for more complex tasks.

Analyses of other occupational programs probably would lead to different conclusions about technical skills and equipment. For example, examination of heavily capital-intensive areas like Electronics leads to the recommendation that as much industry placement as possible be sought or that advanced technical training opportunities be offered in a regionalized center. We are calling

for a case-by-case analysis of each occupational area and responses that will best serve students.

b. Work Attitudes and Job Readiness Skills. There is currently an emphasis on providing employability skills to students, in addition to and in some cases instead of technical skills. A manual developed by the Board of Education ("Getting Your Foot in the Door") has been tested and distributed; the State Education Department has mandated a year of Business Dynamics, stressing employability skills, as part of all business education programs. There is consensus about the practical aspects such as filling out a job application, responding to interview questions, and where to look for a job. But there is serious disagreement about the best way to provide the attitudinal training -- how to dress, speak, and behave on the job.

Supporters of teaching employability skills say these are what students lack and what industry most wants. Teachers in business education complain that it means replacing time needed for skill training with less useful attitudinal work. Although the Bureau of Business Education has worked out a method of integrating these attitudinal skills into the data processing skill training curriculum, teachers say it steals time from technical skills. Some teachers remain unconvinced that you can teach students work attitudes in a classroom setting.

Despite these rumblings, some data processing programs do teach work attitudes. Still, most students in business education and data processing classes had very little understanding of the mechanics of getting a job, the aspect of employability skills that causes the least controversy among educators. Our researchers' interviews of

students revealed that many do not know how to respond to a newspaper advertisement or how to locate employment agencies. They are not connected to any kind of network, unless they are lucky enough to have a teacher who can place them. They do not know how to ask for a job, sell themselves, show they are enthusiastic about working, or present their skills. Students with skills consider themselves unskilled because what they have learned is "a subject" in school, not a job skill. Other students may know to look in the newspaper, ask friends, apply to agencies, but few know how to apply for a job at a big firm except through the Board's COOP program or the New York State employment counselors in the schools. Few have resumes or know what they are. Most have not heard of "career counseling," much less received it.

Students stressed their need for training in these employability skills. Especially in business education classes, students reported again and again they were not told how to talk, dress, act, or what to expect in an office. In a high school with a major concentration in business, students complained that:

> They talk vaguely about how to dress in the business world but never really explain what we would wear exactly. Everyone dresses weird in our school. The teachers don't set a good example. They throw pamphlets at us but no one sits down and talks to us. The work experience course is limited to seniors with room in their schedules and it's a hangout class anyway.

In contrast, cosmetology programs emphasize employability skills as an integral part of the students' training. The "client" is discussed as frequently as curling irons because "this is a service business and you have to cater to the client." Said one teacher,

> Attitude is everything. Every day I talk about it. I talk about how to live in this society, how one has to provide for oneself, how to be a good citizen, and how it will all pay off in a career.

Cosmetology students said they were grateful to teachers who had steered them toward appropriate work behavior and insisted on high standards of performance. Students are told that cosmetology is a service profession requiring contact with the public, and that their behavior and demeanor are key to their success. Cosmetology teachers present good role models in grooming and deportment. Combined with the technical skills they learn, and the clear evidence that their teachers care and are "on their backs" so that they will succeed professionally, students take this attitudinal training to heart.

Exposure to the world of work, and recognition that getting a job depends on adhering to certain codes of behavior, are what make students tolerate and in fact demand training in employability skills. More likely to lead to jobs after high school, cosmetology programs seem able to integrate employability and technical training with ease. Within data processing programs, which are less likely to lead to employment until after college, there is more difficulty teaching work attitudes. But many data processing students will still need jobs during and after high school, even if they do pursue higher education. This lends credence to our belief that every student should have a work experience component as part of any occupational education program. We will discuss this further in Chapter IV.

7. Access to Equipment

Most cosmetology programs can provide access to equipment for all their students at once. One or two programs had more serious problems, especially with their physical plants -- the condition of

the wiring and plumbing, the size of the shop and how crowded it was, the need to electrify rooms to expand the program. Distribution of VEA funds for equipment by the Bureau of Trade and Technical Education appears to have been fairly equitable.

In data processing programs, there are significant problems in providing access to computers and hands-on experience. Table 1 shows the range in equipment. Table 3 lists the specific equipment at each school. A very small number of programs have enough computers or "stations" to have two students working at each. Many more classes have groups ranging from 4-10 students sharing one machine. In several programs, access is so limited that students wait in line to type up their cards on the one single working keypunch machine, or come up one-by-one to the front of the room to enter two commands on the lone personal computer. Some courses use the computer at the central Board or Brooklyn College and share a single terminal at the school that is used for administrative purposes as well as instruction. In these cases, students may never get to run their programs at all.

As mentioned earlier (see pp. 16-19), some variation in equipment seems to be related to the departmental placement of the data processing courses. For example, two schools that have microcomputers for every one or two students, plentiful course offerings and superintendents who put funds into the computer program, offer their main computer program under the math department. In both these cases, business education departments also teach computer courses. In one, the business education computer courses have access to the computer lab but for fewer periods and the math department controls the

TABLE 3

DATA PROCESSING EQUIPMENT

School	Equipment (As of Spring, 1982)	Comments
A	1 Commodore Pet (micro)	
B	1 Apple 2 Pets (micros) 3 TRS-80's	Turned down an IBM Systems 3 because outdated, maintenance too costly
C	5 Keypunch machines 1 Terminal	Hookup to UAPC computer
D	Keypunch machines	Computer literacy only
E	1 IBM System/3 (mini) 26 Keypunch machines 12 Pets (micros) 1 Digital PDP 1134 (mini) with 5 stations	Also use as terminal to UAPC Outdated system, trying to replace. Was not being used by central, asked and got it transferred.
F	1 IBM System/3 (mini) 17 Keypunches 3 Diskette entry stations	 8 broken Students run programs 1x semester
G	1 Data 100 Terminal with 5 Keypunch 12 micros (in math)	
H	9 Pets (micros)	
I	1 IBM System/32 (mini) 3 Pets (micros)	More modern than IBM 3, but new models have replaced the 32
J	IBM System/3 (mini) 3 Micros (in math)	
K	1 Data 100 Terminal 2 Keypunch machines Math Computer Lab: Hewlett-Packard Plotter, Calculator (for typing cards) 15 Pets (micros) 11 Apple II (better micros) 6 Printers	In program office, used also by business education
L	1 Digital PDP 1134 (mini) with 6 stations	

School	Equipment (As of Spring, 1982)	Comments
M	1 IBM System/32 (mini) with 3 Keypunches	Waiting for the newer IBM 34 with 8 terminals and 2 printers
N	1 IBM System/3 30 TRS-80's (micros)	Trying to trade in the System 3 for a more modern mini
O	1 Terminal hooked up to UAPC 5 Keypunch machines 3 Pets	
P	1 Digital PDP 1134 (mini) 12 Pets (micros)	
Q	1 Terminal hooked up to UAPC 13 Micros	
R	1 Data 100 Terminal 2 Keypunches 3 Micros	
S	1 Digital PDP 1134 (mini)	
T	1 Data 100 Terminal 2 Keypunch machines	
U	1 Data 100 Terminal connected to Board 1 IBM 32 (mini-2 years old) with 2 diskette machines (IBM 3742) 3 Pets (micros)	
V	2 Pets 1 Printer 1 Card Reader 3 Keypunch machines	Hooked up to Board, but students do not get to run programs
W	3 Pets	
X	1 IBM System/3 (mini) Micros (in math)	
Y	Hookup to Board computer 13 Micros 1 Printer	

School	Equipment (As of Spring, 1982)	Comments
Z	1 Data 100 Terminal hooked up to Board 2 "old" micros 7 Keypunch machines	2 broken
AA	1 Data 100 Terminal (connected to Board) 6 Keypunch machines 1 IBM 3742 Card Feeder, Diskette Data Reader	
BB	1 IBM System 32 (mini) with 3 Stations	
CC	Terminal connected to Board 2 IBM 3742 Dual Entry Stations 1 Diskette Entry machine 4 Pets 2 old Hewlett-Packard (micros)	
DD	1 Data 100 Terminal 7 Keypunch machines (3 working)	

Key: There were a number of different configurations of computer equipment in the schools. We list the brand names where available, and in parentheses the size of the computer, though not its memory capacity. Terminals are hooked up to "main frames," the largest size computer with the greatest memory capacity, either at the Board (UAPC) or Brooklyn College (MIDP). Mini-computers are medium sized, self-contained units which can simulate the operations of a main frame, and include IBM System/3, 32, 34, and Digital PDP 1134. The older machines require keypunch machines to punch the data on to the cards that are then fed in to the machines. Newer minis take diskettes or floppy discs. Computer operations can be taught on mini-computers, as can the business languages of RPG 2 and COBOL. The micro-computers are the smallest, personal size computers, and vary in memory capacity and capabilities (which we have not included in this chart). Micros include Commodore Pets, Apples, and Radio Shack TRS-80's.

scheduling. In the other school, business education does not use the computer lab except for the introductory course and is confined to the single remote terminal and keypunch machines in the administrative program office.

Yet facility with computers depends on practice at the machine. Although the "committee" approach has benefits -- peer teaching, group problem solving, learning to work in groups -- technical competence depends on the amount of time spent on the computer.

Interdepartmental cooperation and sharing of equipment is in theory a cost-effective and educationally sound approach. Although there appear to be problems of "turf" in many of the programs where several departments shared equipment, this problem could ease as schools and the Board implement a policy of planned, multiple use of computers in their schools.

With the right equipment, computers can be arranged in a network fashion to increase their capabilities, and hooked up to larger computers with greater capacity at remote locations, such as at the central Board. Thus, a school can use one system of computers to meet its administrative, instructional, remediation, and occupational education needs. At least 14 schools have some kind of shared use; Bergtraum and Lehman stand out. At least three others have submitted proposals for total interdisciplinary use. Encouraged by central Board experts, this approach rests on purchasing computers that are "compatible" (thus necessitating planning and expertise in purchase decisions), and "upgradeable" (with memory capacities that can be increased to take on more complex instructions and do more complicated tasks). Master plans for each school's use

of computers -- for both the short and long term -- have been recommended by industry advisors and by the Office of Data Processing at the Board, and the EPP endorses these. In this multiple use arrangement, care must be taken that all participants are accorded equitable access to equipment.

In schools which have limited equipment or outdated machines, the EPP recommends that some arrangement should be made for students to have access to programs and equipment at other schools or industry sites. All programs should be brought up to a minimum level in both equipment and curriculum, and current efforts by the Board to accredit programs and upgrade shops are beginning to address some of these inequities.

In the meantime, students should know what the programs really offer. There must be truth in advertising; hiding the fact that a program has out-of-date or inadequate equipment to protect its enrollment is not fair to the students.

8. The Accreditation of Occupational Education Programs

As a way to lessen the variation among programs, maintain standards of quality, and stimulate the schools to provide industry with what they need, the Office of Career Education has begun a drive to accredit occupational education programs. Ultimately, the process will make sure teachers are properly licensed, equipment is adequate and available, and curriculum is appropriate. Methods of insuring that students who have completed programs are assisted in securing jobs, and follow-up on how many are actually placed will be developed. The projected timetable puts 1990 as the year when the full process should be implemented for all programs.

For the past two years, the emphasis in accreditation has been on curriculum development. Task forces representing the Board, the United Federation of Teachers, business and industry, and experts in the field were organized. One occupational area in each of the bureaus was selected to develop standard experimental curricula.

Cosmetology was chosen for 1981-82, and word processing* for 1982-83 along with other areas. A committee of teachers and assistant principals from each of these occupational areas was assigned to review and write curricula, which were then distributed for testing and evaluation by the schools.

The accreditation process for cosmetology did not have to include a full curriculum review, because there already existed a well-developed curriculum. Curriculum projects dating from the early 1970's, supported by federal, state, and city funds, had been produced with the participation of industry and educators. The new three-volume cosmetology curriculum produced last year was written by teachers and administrators on the basis of these earlier efforts. Our interviews revealed that school staff were using the materials and were pleased with them. The ease with which the new curriculum was put in place is, no doubt, the result of the earlier curriculum projects, and the general cohesion among programs in cosmetology.

However, a number of concerns need attention. First, while we believe that curriculum is probably the most important program component, we think that the other aspects of accreditation -- equipment, job development and placement, work experience components, follow-up

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* Word processing is offered as a concentration within data processing programs in business education departments.

on graduates, and teacher licensing and recruitment should receive attention at the same time. There does not appear to be any coordinated effort by the Board to do this.

In addition, the EPP recommends that industry be involved in curriculum development and review. Using only school people to write curriculum, without involving the relevant industry, is a mistake. That cosmetology used only educators in this current curriculum development attempt and was successful hides the importance of their past coordination and ongoing relationships with the industry.

Our observations of the development of curriculum in the two areas of word processing and cosmetology indicate that the success so far is due to the selection of teachers and administrators with sufficient expertise and industry connections. But the process has not been adequately designed to insure industry participation. Also, while some administrators at the central Board are providing support for the accreditation process, there seems to be inadequate coordination with appropriate offices at the Division of High Schools. For the accreditation effort to be successful and useful, this participation is essential.

- Representatives of all appropriate offices at the central Board plus assistant principals should be involved in this accreditation process and responsible for specific tasks.

Another concern is how these new curricula will be revised to stay current. Our research shows that while school staff try to stay up-to-date, some individuals and programs are more successful than others. We concede there may be areas which undergo little change over time, but these are in the minority. Mechanisms such

as meetings of school staff, industry representatives, and curriculum people; response forms with curriculum booklets (not just the experimental drafts) for notes by teachers and students; and annual or biannual revisions should be instituted.

- There should be a regular review process built in, to insure that curriculum, teacher training, and equipment keep pace with changes. Areas where technology or labor market demands are changing especially quickly should undergo more frequent evaluation.

Another component the EPP believes should be built into the curriculum development and accreditation process is the provision for work experience. As the chapter on industry involvement will demonstrate, work experience is what employers most often seek in applicants. Furthermore, work experience provides invaluable training in both technical and employability skills, and keeps many students from dropping out. All occupational education programs should include a work experience component, and new programs should be designed with this at the outset.

Finally and most importantly, the accreditation process must set standards for vocational education programs.

- Standardizing curricula and providing consistency in offerings does not mean that individual school variations need to be eliminated. The two important attributes of standardizing programs are that there be a minimum set of skills and knowledge taught, and that there be "truth in advertising," so that students are informed of variations in programs from one school to the next. (See Chapter II.)

II. CHOOSING A SCHOOL

Choosing a New York City high school to attend is more difficult and confusing than is choosing a college for many students. If a student is interested in a vocational program, he or she must sort out almost 600 programs listed in the High School Directory, divided among 89 career titles and more than 100 high schools. Some programs are screened and some have no special admissions requirements; some schools are zoned, some are open to borough residents, and some are citywide.

Such a task is difficult enough. Compounding it immeasurably are numerous errors in students' and parents' major source of written information, the High School Directory, and, even more frustrating, the wide variations in programs that we have discussed which are not indicated at all in the listings. Finally, admissions requirements for what are purported to be comparable programs may be substantially different.

1. Information Students Receive

The information students receive about occupational education programs is inadequate and often inaccurate. The options are numerous. Eighth and ninth grade students may choose from hundreds of special programs within many high schools. They must apply to these in the fall of the year prior to their entrance into high school. Or a youngster may decide to attend his or her neighborhood school (zoned school). The high school application process is often a maze of confusion for students and their parents.

The High School Directory includes instructions on all aspects

of high school applications and requirements. The 1981-82 Directory was a vast improvement over previous efforts. The occupational areas and the schools which offer them are listed in the front of the guide, while school by school descriptions (composed by the schools) including occupational education programs, are found in the back. There are numerous errors and contradictions between the information in the front and back sections. In the 81-82 Directory, three schools are listed under Cosmetology which offer no cosmetology, and six under Data Processing which either have no programs or very limited ones. There are also at least seven schools offering data processing programs -- five of them with two-year sequences -- which are not included at all. Most important, there is nothing to indicate that program intensity and content might differ from one school to another, and that what is called data processing at Norman Thomas High School might be completely different from data processing at Canarsie.

This year's directory is not much better. Nowhere in the 1982-83 Directory are the occupational areas described. (In last year's directory, some definitions were provided in the glossary at the back of the book but there was no indication they could be found there. This year, even the limited glossary has been considerably condensed.) One student reported she took cosmetology thinking it was some kind of science. Last year's directory listed 57 different career titles, and this year's lists 89. When our researchers suggested the need for occupational descriptions to the administrators responsible for this year's revision, the Board personnel objected that there was already too much information in the directory and more would only add to the confusion.

The 1982-83 Directory was supposed to clear up all errors. The new cosmetology listings are accurate. But there is still no explanation of each occupational area. Data processing has now been subsumed under a new category called "Computer Science," and apparently includes both academic and business programs (which, as we have discussed, have very different goals and content) without distinguishing between them. The new list bears little resemblance to last year's. At least one school our researchers visited with a major program sponsored by the math department and another with a program in the accounting department do not appear. A smaller, but certainly legitimate data processing program at another school has been dropped from the listing. In short, the directory is, once again, full of misleading information.

Other sources of information for entering students are the high school recruitment efforts and junior high school guidance counselors. Neither is adequate.

There is no mechanism for coordination between junior high school counselors and the high schools other than what is done at the initiative of individual schools.

Two of the data processing schools we visited allocated money for a teacher to act as a recruiter and information source. These staff people organize teams of students from various occupational areas to make presentations in junior high schools, at community-based agencies, and at lunches and fairs at the high school. A number of high school students said they had been impressed and convinced by these recruitment teams.

Sarah Hale High School recruits students for its cosmetology program, which has expanded from 400 to 800 students during the

TABLE 4

HOW COSMETOLOGY IS ADVERTISED IN THE HIGH SCHOOL DIRECTORY'S SCHOOL-BY-SCHOOL DESCRIPTIONS

High School	Description
Sarah Hale Brooklyn	Under Educational Options Course: - Cosmetology -- offered in main building and Boro Park Annex,.. Students are prepared for the State Licensing. Under Programs for Students with Limited English Prof.: - Bilingual Career Education in...cosmetology
Jane Adams Bronx	Under Screened Courses: - 10th grade Cosmetology Under Career-related Courses: - Beauty Salon Management/Ownership--dual enrollment cosmetology and business education
Grace Dodge Bronx	Under Screened Courses: - Cosmetology for students living north of Tremont Avenue
Mabel Bacon Manhattan	Under Screened Courses: - Cosmetology leads to New York State certification, requires entrance examination, interview, evaluation of record Under Special Features: - Beauty Salon Mngmt./Ownership--Cosmetology Students
Queens Vocational Queens	Under Screened Courses: - Cosmetology (Grades 10 to 12)
William Maxwell Brooklyn	Under Screened Courses: - Cosmetology/Nail Technology
Ralph McKee Staten Island	Under Screened Courses: - Cosmetology
Eli Whitney Brooklyn	Under Unscreened Vocational Courses: - Cosmetology

past four years. Staff and students visit junior high schools and make presentations at parents' associations and borough superintendents' meetings. A hair styling show in June advertises the program to the community. A brochure includes information on the program, work experience opportunities, career choices and information on the Bilingual, Shared Instruction, and After School Occupational Skills Programs available in cosmetology.

Information provided by junior high schools about occupational education programs is often incorrect; students are misled and have unrealistic expectations, causing discontent in the high schools. Part of the reason for this is the dearth of guidance counselors.

A number of students reported a disparity between the information they received and the services that were actually available. In a few cases, students felt they had been misinformed by the high school itself. In one case, some students interested in computers were assigned to bookkeeping and told they would have access to computers. Already at the end of their junior year, they complained to our interviewers that they had still not been allowed to use the computers, and did not even know in which room they were located. This may have been an isolated incident, but most such misinformation could be avoided if occupational areas were defined, and actual offerings in each school delineated.

The first citywide high school fair took place in October, 1982, organized by the United Parents Associations with the Board of Education as a response to the inadequacy of information provided about high school options. The fact that approximately 8,000 students and parents attended demonstrates the need for this sort of event. Career choice

workshops for eighth and ninth grade students at the beginning of the fall term, prior to the first deadlines for applications to special programs and schools are an additional strategy worth exploring.

A Metroguide computer system is planned using federal and city funds to provide information on high schools at 60 sites through terminal hookups to the Board's computer. By June 1983, descriptions of high schools and their offerings will be available, as well as information about occupations and preparation for careers, and the traditional Metroguide information about colleges.

Most students revealed they did not choose programs on the basis of any systematic information about the offerings. They most often selected schools and programs on the basis of the reputation of the school (and perceptions of any one school could run the gamut from excellent to terrible); whether their parents perceived the schools as safe (again, a large range in perceptions); and the proximity of the school to their home (although many students do travel long distances to their schools). Even students whose choices were based on an accurate appraisal of what they were seeking rarely were aware of all the programs which could meet their needs.

• To help the students make the most informed choices of appropriate high school programs, the EPP recommends the following:

- The High School Directory must be revised to be accurate and easier for students to use. Differences among programs should be made clear.

- A definition of each occupational area should be provided. Then, separate descriptions of each occupational area could be developed and distributed to all students who think they might be

interested. These brochures could summarize the course content sequence, and the equipment which is available. (A few of the high schools have included this kind of information in the current High School Directory. Bergtraum's description is a good model. For the most part, however, there is no standard form or basis for comparing one program to another.) The pamphlets could describe careers and job outlook in that occupational area, and give students an idea of the different career paths available to them.

- Recruitment teams composed of staff and students to make presentations at junior high schools are a good idea and resources for them should be allocated, especially to recruit boys and girls into non-traditional occupations.

- The High School Fair should become an annual event.

- Program goals and offerings should be made clear at all recruitment sessions.

- Metroguide computer systems should be expanded to cover the incoming student population as well as the entire high school population. Students, parents, teachers, and administrators as well as guidance staff should have access.

- In every district, guidance counselors (or other appropriate staff, as determined by the districts) should be trained to inform junior high school and intermediate school students and parents about different high school programs.

2. Admissions to Occupational Education Programs

Our 1980 study identified problems with the process by which students gain entry into occupational education programs. Help

Wanted found that:

> Ten to fifteen thousand students each year fail to find a place in the vocational program of their first or second choice. While some programs are grossly overcrowded, others have difficulty attracting students. Students who are rejected from vocational programs have few alternatives and are often not informed about the alternatives that do exist.

We found that the problem now is not so much a shortage of seats for all students who want occupational education programs, but a shortage of seats in particular programs. There are still programs that are oversubscribed and others that are undersubscribed. Declining enrollment and an expansion of occupational offerings have alleviated the original problem, but there are still students who are denied admittance into programs of their choice.

We also found that there is still inadequate guidance for students who are rejected from vocational programs. A VEA project planned for 1982-83 will identify 350 students who have been denied admission to the vocational schools, and refer them to other alternatives, such as the After School Occupational Training Programs, Shared Instruction, Training Opportunities for Students with Limited English Proficiency, and career guidance services.

Implementation of a centralized, computerized system for placing students in high schools and special programs began in the 1980-81 school year. During the first year, the central Board assigned students to those programs which are "unscreened," requiring applications but no special qualifications or examinations for entrance. They also monitored admissions to the "Educational Options" schools. In the 1981-82 school year, the central placement personnel took over the admissions to these Educational Options schools, and did

the placement for all except the "screened" programs, those for which students must take an examination and fulfill special requirements. There were many problems with this year's process. Many students were unnecessarily excluded from the programs of their choice, even though seats were available, and some of those programs then operated with unfilled seats. Steps have been taken to resolve problems like these through a refined computerized system.

For 1982-83, all admissions will be computerized. The EPP applauds these efforts to improve equity in the placement process, to increase available choices and give students second chances to choose if they are not accepted in their original choice programs, and to fill empty seats in undersubscribed programs.

We understand that the following items, crucial for the success of the new system, will be incorporated. We recommend strict compliance with this schedule:

- Release of the High School Directory by September 15. (This has been accomplished.)

- A single notification to students of all initial acceptances by March 1, including notice of at which schools students are on waiting lists. It is essential that the students be clearly notified that they will have a second chance for admittance into schools where they are on the waiting list.

- A telephone hotline for parents and students for acceptance notification in addition to the written notification.

- Second and third stages of selection process to allow students to shift schools as openings become available, to be completed by May 6.

- Transfer of all records from feeder schools directly to high schools after final acceptances.

- Student receipt of final confirmation of the high school assignments before the last day of school.

Since the admissions system is in flux, and intentions to resolve the past problems have been expressed, we will not detail either the problems or the specifics of the changes. Unfortunately, students hurt by these past problems are just entering high school now, and those who are dissatisfied seem to have little recourse. However, we will be monitoring the process once again this year. Students should not have to bear the burden of any problems due to the transition to a new system, and they should certainly not have to spend four years in the "wrong" high school.

Finally, there is the question of whether and at what point students can transfer in or out of an occupational area. The stated policy in the High School Directory allows students in special programs to transfer back to their zoned neighborhood school, but not to any other high school. Principals of three vocational schools said they had informal arrangements with other schools to allow some students to move into another unzoned school. For the most part, however, students must either stay in that school or transfer back to their zoned school. Although most concentrations do not begin until the 10th grade, students who are in high school during the 9th grade do not have the option to apply to another special program for the 10th year.

Within a school, it is possible for a student to transfer from one occupational area to another. Depending on the length of

the concentration, students may be allowed to make this move early in the 10th grade or, for two year sequences, in the 11th grade.

• Although we recognize the problems of transferring students from one school to another once students have been assigned, it is important that students have some recourse if they feel they have made a mistake in their choice of program. Insofar as possible, students should be allowed to transfer as long as they can still complete a sequence and the requirements for graduation.

3. Admissions to Cosmetology and Data Processing Programs

Of the eight cosmetology programs, six are "screened" programs and two are "unscreened." Screening means that students must meet certain requirements. Requirements differ widely. One program screens simply for home neighborhood, so as not to compete with a nearby school also offering cosmetology. The rest look for manual dexterity and the absence of any allergic conditions or asthma, since students are exposed to beauty lotions and chemical dyes. One program is an educational options course and follows the prescription to accept 25% above grade level in reading, 50% at grade level, and 25% below. No one was able to give us an answer for why some programs are screened and others are not; however, the central admissions personnel say they are undertaking a review of all screening requirements with the intent of eliminating unnecessary demands.

In data processing, at least four schools' computer courses are open to everyone, including special education students. Twenty-two had no special requirements. Five demanded prerequisites including:

School A: 8th - 9th grade reading level (or proof they can read the textbook).

School B: A passing grade in algebra and a recommendation from the math AP (for computer courses in the mathematics department).

School C: Two cycles of algebra and an 8th grade reading level.

School D: On grade level in reading and math.

School E: Open to 11th and 12th graders who have completed their two-year math requirement.

The Division of High Schools is reviewing admission requirements to avoid practices which do not relate to the course of study or which discriminate against specific populations. This review should compare similar programs as well as examining each individually.

We recommend that, as part of the accreditation process underway, standardized admissions policies for comparable programs be established and that irrelevant requirements be eliminated.

III. OTHER ISSUES AFFECTING THE CONTENT AND CONSISTENCY OF OCCUPATIONAL PROGRAMS

1. Teachers

Licensing. Teachers of cosmetology are licensed cosmetologists with at least five years of experience in the field, a requirement of all shop teachers in vocational areas. Data processing teachers may be licensed in business education, math, or science. There is currently no license in data processing. Business education teachers must have at least three years of experience in the business world, but academic teachers are not required to have any industry or business background.

Recruitment and Retention. There is a serious shortage of teachers in shop areas, business education, math, and science. The majority of shop teachers are expected to reach retirement age within the next five years. There are almost no qualified math or science teachers entering the school system. Only about 10% of junior high math teachers are licensed, and there may be as many as 1,000 vacancies for math teachers. Both cosmetology and data processing programs reported shortages of teachers; they have problems finding teachers to fill the demand for the courses, and some have even returned money allocated to them because they could not find a teacher.

Since Help Wanted was published, salary increases have been added for increments of five years of experience in industry. Cosmetologists who have recently become shop teachers say that a minimum of ten years credit is necessary to even approach being competitive with industry.

Some schools have devised methods for locating shop teachers.

At Ralph McKee Vocational Technical High School in Staten Island, the school offered potential shop teachers a preparatory course for the licensing exam. George Westinghouse High School advertised for Electronics teachers in the regular New York Times "Help Wanted" section rather than in the Sunday "Week in Review" section which lists career opportunities for educators, where industry people are unlikely to look.

Samuel Gompers High School in the South Bronx has proposed hiring its graduates as paraprofessionals in shop classes while they attend college for their teaching certification; at the end of five years, they would become regular shop teachers. The State Education Department has rejected this idea, saying classroom teaching does not substitute for actual work experience.

Retaining teachers appears to be less of a problem than finding them. Long-time teachers have risen to an adequate salary level and have accumulated attractive pension and health benefits. While private sector jobs in the computer field offer much higher starting salaries than teaching, they are comparable to the maximum teacher salary or most administrative salaries. Schools did report losing their newer data processing teachers to industry.

Teacher Training

a. Data Processing. With no separate license in data processing, teachers have gained their proficiency in different ways. A number took computer courses in college, and a few trained under National Science Foundation grants during the 1960's. Many teachers have gone back to school on their own time and money. The Bureau of Business Education runs in-service courses at the Board and

occasionally in the schools. Teachers with special expertise (with help, in one case, from student experts) run courses in their schools for their colleagues from their own and other schools. A teacher who is learning computers may sit in on classes with the students, and learn both the subject and the teaching method at the same time. In addition, many teachers take the manuals home, get a computer, and teach themselves. Finally, vendors may provide training with the purchase of equipment.

In-service courses offered by the Board for teachers and administrators are oversubscribed and considered useful. More are needed. Teachers who did not attend the bureau courses said a main reason was the traveling distance from their school to the Board, and asked that more courses be located regionally. The in-school in-service courses taught by department members are very well received, since they are applied to the particular equipment and student population in that school. While the Bureau of Business Education has been actively offering courses, there is less technical assistance provided by the academic bureaus of math or science. The Board has recently organized a Computer and Information Science Unit within the Division of Curriculum and Instruction. They will be offering courses to train teachers and administrators each year. This office also offers assistance on equipment purchase and is developing an approved list of software by having reviewers come in and evaluate commercially prepared software from 200 vendors.

Industry training of data processing teachers has been negligible to this point. This is unfortunate because obviously the Board can't

meet the demand, and industry training is less costly and more in touch with the latest industrial uses. However, training by vendors has been of varying quality and value. Sometimes training has been offered at the company site, usually for a fee. The training is not always applicable to secondary school courses or even to the particular model of equipment. Word processing training has been more readily available to teachers than data processing.

The Advisory Commission on Business Education has recently begun to address the issue of teacher training, arranging word processing training for 200 teachers this summer at various firms and locations, as far south as Georgia. Major costs have been borne by the companies, although teachers have had to pay between $10 and $25 a day in addition to food and lodging. While teachers were glad for the opportunity, some felt the travel and costs were a burden.

b. Cosmetology. The cooperation between the industry and the cosmetology programs provides much of the training teachers need to stay current. Special workshops and demonstrations in new techniques are given at schools and in the firms. Schools also arrange their own in-house training: for example, one program had demonstrators from three companies train teachers in techniques of black hair straightening, cutting, and skin care.

Some training is offered jointly to teachers and students. A workshop in skin care, arranged by the Advisory Commission, was held for students and teachers on two consecutive Mondays, serving all five boroughs in two groups. Not only is this dual training sensible in terms of expense, but it also fosters collegial relation-

ships among young people and adults and an attitude of seeking further knowledge for professional advancement among teachers and students alike. In addition, students make job contacts.

The EPP makes the following recommendations for teacher recruitment and training:

- The Board should conduct an analysis of vocational education teaching staff by trade and occupation, to indicate which areas are affected by vacancies and impending retirements. The analysis should include data on numbers of teachers with multiple licenses, out of license and with temporary certification.

- The central and school-based advisory commissions (see pp. 82-84) should participate in recruitment of new teachers.

- The Board should explore the possibility of new staffing and scheduling patterns that would allow people employed in the private sector to keep their present jobs and teach at the same time. This can include hiring part-time teachers for regularly scheduled or evening and weekend courses, and allowing skilled persons to provide occupational training without completing all of the formal licensing requirements.

- The shortage of teachers in certain areas could be alleviated by expanding opportunities for on-site training for students (see Chapter IV).

- The first step to ensuring that teachers stay up to date in their field should be an analysis of staff needs by occupational area, to determine what topics should be covered, how many must be served and what sources of training currently exist.

- Negotiations with industry to share responsibility for

teacher training should take place. It is vital that both industry and school-based personnel be included in the design and implementation of this staff training process.

2. Support Services

Guidance, career counseling, job development, and job placement services for students in vocational education programs are not well coordinated with these programs. As with so much of what works in the occupational education system, the support services which are well matched to students' needs are the result of the efforts of individual school principals and school-based personnel. For example, many cosmetology teachers perform the function that is supposed to be accomplished by guidance counselors, work experience programs and employment counselors. For a variety of reasons, those mechanisms which purport to provide these services do not reach enough students.

Teachers of business education and cosmetology universally believe that the guidance departments are biased toward college placement and against vocational and business education. In academic/comprehensive high schools, said many business teachers, students are steered away from business skill training, even though both academic and occupational training requirements could be satisfied with a full concentration in business education. Teachers feel guidance counselors are doing a disservice to students who are not likely to make it through college by pushing them into an academic track with little emphasis on training in a marketable skill.

More important, there are simply not enough guidance counselors to serve high school students. For the city as a whole, there is

one guidance counselor to every 627 students. In the 45 schools we contacted, the ratio was slightly lower -- 1:590. But there is a wide range in how principals allocate their money to full time guidance services. In the schools we studied, the ratio ranged from a low of 1:288 to a high of 1:1,748. At least seven schools had one guidance counselor for more than 1,000 students. There was no discernible pattern in allocations for guidance services between vocational and academic/comprehensive high schools. Principals allocated to guidance as little as 1.1% and as much as 6.6% of their total funds for instruction.

Schools with the greatest number of guidance counselors do not necessarily provide the most assistance for students in occupational education programs. What guidance counselors do varies from school to school; some spend more time on suspension hearings, some more on college placement, and some (only a few) on career counseling. With this scarcity, it is no wonder that students perceive that "the guidance counselors just want to get the seniors out -- they don't really care about the rest of us." Although the EPP does not believe that these services can be provided only by guidance counselors (and in fact, others may be more appropriate for occupational counseling and job placement), there must be resources and time allocated to fulfill this function. With counselors so overwhelmed with the formal requirements of college applications, it is not surprising they have little time for career counseling.

Furthermore, most guidance personnel lack the expertise in specific occupational areas to know what likely career paths might

be. Cosmetology teachers often fill this void for their students. They are available, know their students well, know the occupational choices in the field, and care about their students. We also found a number of word processing and secretarial studies teachers who took on this kind of responsibility. However, while they often advise their students about opportunities in their own fields, they cannot be expected to provide comprehensive career counseling about all possible options in which a student might be interested.

A number of schools have developed exemplary career centers and departments. Sheepshead Bay High School has a guidance/career center, staffed by students and adults, with files of information on hundreds of careers and educational possibilities. August Martin High School has an entire department devoted to career education, which offers both the occupational area training and the support services all within one administrative unit. Murry Bergtraum High School for Business Careers has an extensive guidance, career counseling, and job placement arrangement, which secures internships and work experience placements for every 11th and 12th grade student in the school; we will detail this further in the section on Work Experience programs in the Industry chapter (see p. 88).

Job placement services vary widely from school to school. Sixteen of the 37 schools we visited had New York State Employment Counselors, but two others said, "not since the cuts," referring to the 1976 fiscal crisis. There are 43 such counselors in 46

high schools. At least one school allocates funds for a job development counselor out of tax levy monies and a second has a "work experience coordinator." School-based COOP coordinators get students part-time jobs after school. A number of centrally administered job programs also provide students assistance in getting jobs. But very few of these programs place students in jobs which use their technical skills. Plans to expand these technical work placements are included in the OCE 1982-83 Annual Plan.

It is the teachers in the occupational area who are most likely to help a student find a job in his or her field. In cosmetology, teachers have good connections to industry and local salons. One assistant principal does mass mailings twice a year to all the beauty shops in the area; telephone calls from owners produce requests for students, and the AP then sends a letter of introduction with the youngster to the interview. Once a student is employed, the AP then calls to check on the student and request additional leads. He also asks students to give him shop names from their home neighborhoods, and he then calls the shops. In 80% of these calls, he is able to place youngsters in jobs. He says it is important that the recommendation come from a teacher, because "when a youngster goes himself, with no introduction, he doesn't get the job." Another assistant principal echoes the same belief. She also taps vendors of supplies and equipment, who complain they "can't get good help." Referrals from shop owners who are already employing students and calls from salons which have had students in the past are another major source. Finally,

the trade shows show the students off to good advantage, and many make job contacts in this setting.

The EPP believes that adequate support services for career counseling and job placement must be funded. However, it is not necessary that these functions be filled by licensed guidance counselors. The principal should have the discretion to use support services funds as he or she deems best -- whether to free a particularly gifted teacher for that duty for part of the day or to use a paraprofessional if that is appropriate. Other possibilities include volunteers or community agencies.

3. Sharing Information and Assistance

Assistance with curriculum and program design, equipment and supply purchases, proposal writing and training are important for occupational education programs. Such technical assistance must be practical, readily available, and up-to-date. This is particularly critical in areas like data processing and electronics, where technology is changing rapidly, equipment is expensive, and no one vendor or approach dominates the field.

There are many vocational teachers and administrators who have expertise and knowledge that would be useful to their colleagues. Sharing this information helps to reduce the variation among programs, disseminates good ideas about programs and curricula, and aids in equipment decisions.

Cosmetology has a well-organized Standing Committee of Assistant Principals, coordinated by the Bureau of Trade and Technical Education.

The committee meets regularly about program development, new techniques in the field, and staff training needs. Thus, there is citywide communication among all cosmetology programs and a structure that supports this exchange.

Communication and coordination among data processing programs are on an informal and personal basis. There is no formal organization for data processing teachers and administrators to share information, resources, and equipment. There are what we have termed "resident experts" in each school, staff people with particular interest and knowledge about computers. Because the field is new and the equipment proliferation so rapid, there is little agreement among these "experts" about the optimal approaches and equipment. Different schools have different equipment, requiring different expertise. Teachers from other schools often call upon these "resident experts" to train them, give advice on program and equipment, and discuss trends in the field. Their assistance is often seen as more helpful than training from the bureau or central Board because their advice is geared to that specific school and equipment. While these informal efforts are to be encouraged, too many school people lack adequate connections to the knowledge possessed by their colleagues to depend on informal communication as the only mechanism.

- We recommend that a formal structure be organized, to share resources and reduce the unnecessary variation in program content. This structure should maintain close links with the Bureau of Business Education and the Advisory Commission for Business Education.

One model might be to establish "users" groups consisting of staff from schools having the same or similar equipment. Another might be a group devoted to developing multiple use of computers.

In addition to this sharing among programs, the central bureaus have an important role in providing technical assistance, but some bureaus function more effectively than others in this regard. In addition, schools and programs vary as to how much they avail themselves of the resources that are offered, despite their needs. The Bureau of Business Education provides schools offering business education data processing programs with model curricula; visits an average of 50 schools each year; consults with teachers and administrators about programs and equipment; evaluates proposals; serves on the Business Education Advisory Commission; and does in-service training. Many schools said they do not use these curricula. Eleven schools had sent teachers to the in-service training offered by the bureau. Travel time from the school to the course was cited by several teachers as the reason why they did not attend. Although some school people had disagreements with the bureau or did not use its services, the general reaction was that the bureau was helpful and accessible, and that schools would like more assistance in program development, proposal writing, teacher training, and equipment purchase. Since all schools will eventually have some kind of computer literacy courses, and since more and more schools are acquiring computer equipment, the need for technical assistance from the bureau is great. However, the bureau says it lacks the staff to expand its

services beyond its present offerings.

In addition to the Bureau of Business Education, data processing programs can seek technical assistance from the Office of Data Processing, which approves all computer purchase decisions. However, there is inadequate coordination between the Bureau and the Office of Data Processing. Since the Bureau of Business Education has more contact with the schools, and since the Office of Data Processing has veto power over equipment decisions made by the bureau, it is important that coordination between them be improved.

We believe that the schools need and should be provided with technical assistance in program and curriculum development, proposal writing, teacher training, and equipment purchase. This means that bureau personnel need technical expertise in these areas or consultants they can tap to provide it. If this technical assistance were coordinated with the expertise shared among teachers and administrators, and with that of the industry experts on the advisory commissions, the additional costs of increasing technical assistance efforts by the bureaus could be kept down.

- We recommend a self-evaluation by each bureau of the Office of Career Education, for the purpose of determining what assistance they currently offer to schools and programs, whether there are a sufficient number of staff with expertise in these areas to serve all the programs in their domain, what they would need to serve all programs, how to connect to other sources of technical assistance, and what resources and funds would be needed to bring all bureaus closer to the ideal model. We suggest that this evaluation be

designed and conducted with the participation of school administrators involved in each occupational area, particularly those with greater technical expertise, so that services meet the needs of schools.

4. Borough Planning of Occupational Education Programs

Prior to this year, individual schools planned occupational education programs, or the responsible bureau and other programs in the same occupational area cooperated with the schools in planning. Several policies and structures have recently been instituted to encourage coordinated planning and better use of resources at the borough level. Borough superintendents are spending discretionary funds on building up occupational programs in their boroughs and at least three are providing schools with computers or matching funds for their purchase.

In January of 1982, the Division of High Schools (DHS) directed borough superintendents to establish "Borough Occupational Advisory Commissions" composed of industry, labor, educators, parents, an Advisory Council member, and Board personnel, to assess in each borough the youth employment situation, the programs in place in the schools, the needs of those programs, what new programs should be created, and long range priorities (3, 5 and 10 year plans). In addition, they are to assist in the expansion of work experience and job placement programs, aid in developing career awareness and guidance programs, and conduct feasibility studies for altering schools to simulate work environments. Finally, they are to connect

to the citywide Advisory Council (although they are not to be part of this structure) to review funding priorities. The Office of Career Education has assigned an administrator to each borough, to coordinate borough planning and serve on the commissions.

There is already a central Advisory Council composed of industry and labor, advisory commissions for each occupational area, and some school-based advisory groups. The EPP believes that the creation of another advisory structure involving industry is duplicative. Industry input is not required for the necessary task of coordinating resources among high schools in each borough.

Industry representatives do not want to attend dozens of meetings. In fact, at least one of the boroughs was not able to recruit business and industry representatives for membership, and others have had very sparse turnouts by the private sector. It makes more sense to strengthen existing commissions (many of which are not fully active), not dilute them. Borough planning (placement of programs among schools, allocation of discretionary funds, etc.) is an internal operation and should be conducted by borough superintendents, not advisory committees. For curriculum planning and job development, there are the existing occupational advisory commissions.

* Thus, the EPP recommends that these new Borough Occupational Advisory Commissions be eliminated, and that the existing Advisory Council and its occupational and school commissions (see pgs. 83-85), the Division of High Schools, and the Office of Career Education develop a non-duplicative approach to fulfilling planning needs.

We suggest that the responsibilities of the school-based and

central groups be defined as follows:

1) The individual occupational commissions should:

- identify occupational areas where training is and will be needed;
- provide input for projections of growth or contraction;
- define the technologies used in and the skills needed for each occupational area identified; and
- review citywide guidelines for curricula and equipment purchasing;
- participate in addressing teacher shortages and teacher training needs.

2) The entire Advisory Council for Occupational Education should:

- review the work of the commissions to ensure that no occupational areas have been missed or duplicated;
- meet with OCE and DHS to share their information and make sure they are all in agreement;
- issue a document containing their findings and guidelines;
- review the schools' proposals for VEA funds as mandated by state law.

3) The school-based advisory committees should:

- help their schools to identify resources or needs unique to the employers in the community that can be linked to the school's vocational programs. They can help provide internships, training, placements, or teaching resources; and
- use their contacts to develop an informal job placement network for graduating seniors.

One example of borough planning is a program called B.R.A.V.O. (Bronx Resources for Academic and Vocational Opportunities), an outgrowth of the idea of Shared Instruction* and the After School

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* Shared Instruction enables students to attend regular classes at their home school in the morning, and travel to a special program at a receiving school in the afternoon.

Occupational Skills Program.** Treating the borough as a college campus sharing resources, B.R.A.V.O. has designated a number of Bronx high schools as specialized centers for particular occupational or academic areas. Students will take courses after school not available in their home schools. $225,000 is going into the project and into the schools to provide the equipment, additional staffing, and transportation necessary. The Bronx Superintendent responsible for the project's implementation, Robert Folchi, has just been appointed by the Chancellor to a one year position heading a centrally directed task force to extend B.R.A.V.O. to the rest of the city.

B.R.A.V.O. is starting its first year of operation with this fall, 1982 semester. We will be interested to see how well it works. In principle, the EPP supports the idea of shared resources, use of school buildings after school hours, and coordinated planning within the borough and the city. One reservation we have is that a number of courses offered in B.R.A.V.O. appear to be for advanced students only. For example, Lehman High School will be offering Advanced Computer Technology, which helps students who attend home schools offering beginning and intermediate computer courses, but not those without any access to computers at all.

Despite our disapproval of the Borough Occupational Advisory Commissions, the EPP believes that regional cooperation is a sensible and potentially cost-effective approach to providing occupational education. Programs in individual schools should be planned with an awareness of offerings in neighboring schools. Expensive equipment

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** The After School Occupational Skills Program offers students courses not available in their home school after school hours.

can be shared. Teacher shortages could be alleviated by sharing personnel with expertise among schools where enrollment in those courses is not sufficient to create a full day of classes. Students can be offered more options than those available in their home school through various shared instruction arrangements.

5. Articulation with Higher Education

Since a goal of occupational education programs is to provide students with the option to go to college as well as the skills to enter the job market, connections to higher education are important. They provide students with exposure to college and help them decide in advance if this is an appropriate choice for their future. They facilitate entry into post-secondary schools. They offer advanced occupational training, and provide access to more sophisticated equipment. Several industry representatives said that the community colleges are better equipped to offer occupational training on "state-of-the-art" equipment and that they do it more effectively and more cheaply than the high schools can.

At least nine of the schools offering data processing we visited have articulation programs in occupational areas with higher education institutions. (There are many more for academic courses.) Five of these articulation programs are in business education, of which three teach data processing. Central efforts to develop these connections are increasing. For example, a collaboration between CUNY and the Board of Education identifies students with an interest in business, gives them intensive training during the summer, places them in work experiences during the summer and school year, and offers an introduction to the CUNY community college system.

Although there are currently no relationships between high school cosmetology programs and colleges, the Assistant Principal of Sarah Hale is currently negotiating with New York City Technical College for an Upward Mobility program that would enable students to attend college courses in Cosmetology Lab Techniques, Chemistry, and Marketing. We commend this kind of effort and hope we will see more collaboration of this type.

Most of the articulation with colleges has been forged by the schools themselves. A member of the Advisory Council on Occupational Education reported an "absence of comprehensive coordination,... and articulation agreements. They are developed on an "ad hoc" basis, rarely motivated by the needs of the students or labor market demands."

> The desired goals of creating a path of instruction that is both incremental and non-duplicative, culminating in employment matching the level of training, has not occurred. Articulation efforts involving the joint development of curriculum on the part of a high school and a community college can be counted on one hand.*

Schools that have tried to develop connections to colleges have had varying success. For example, college computer courses which had been offered in the afternoon and thus could be attended by high school students were offered only in the morning the following semester. Another problem is that students did not adjust to the greater freedom allowed in the college setting; this indicates that students need to be prepared for a difference in approach and the independent work that may be expected of them.

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* Advisory Council report, February, 1982, p. 53.

- We recommend that the Board compile a list of all the articulation programs related to occupational education now in existence at the school and central levels, grouped according to the occupational area. Those occupational areas where equipment is expensive, and where community colleges are likely to have more up-to-date machinery and where there are shortages teachers in the high schools, should be targeted for further articulation efforts.

- At the same time, the Board should analyze the occupational education offerings of the city colleges, including incentives for them to open their facilities to high school students. Colleges are eager to offset their declining enrollments. Perhaps the Board could pay the colleges on a per-student fee basis; if this is viable, the cost should be weighed against the cost of equipping and staffing comparable programs in the high schools. Or perhaps high school students could attend intensive summer programs on college campuses.

IV. INDUSTRY AND THE SCHOOLS

Strong links between industry and the schools are vital to both. Occupational education programs are supposed to provide students with entry level skills. This means that programs need to train students in up-to-date skills on appropriate equipment. In addition, students need exposure to the world of work and to their particular field. They need work experience, the qualification most sought by employers. Specifically, industry can provide schools with ways to keep their curricula, teachers and equipment current. And they can give students jobs. Industry, in turn, needs a skilled, stable, literate work force. Although some companies prefer specific skills training in new workers, all require workers who are at least ready for the responsibilities of holding a job and ready to be trained.

Therefore, it is essential that both industry and the school system work together toward these mutual goals. Despite the fact that representatives of both sectors profess agreement with this principle, neither has done all it could. The Board's efforts to reach out often have lacked sensitivity to the needs of business and the constraints upon its ability to participate. Often, the school system's requests for assistance are duplicative and poorly coordinated. Industry, too, has not responded with much enthusiasm. As this chapter will demonstrate, the need for job training slots far exceeds the number that industry has made available. And participation in occupational advisory councils is very uneven.

Of course, the current employment situation is bleak even for people with skills and college degrees. Fields such as high technology

and computers, that a year ago seemed to be insulated from the effects of the recession, are now cutting back and hiring people with qualifications in excess of the demands of the job. Students placed in work experience programs formerly had a better chance of being hired as permanent employees upon graduation; one bank reports that it is now able to retain only 70% rather than 90% of its COOP students. Within this context, it is even more important to students' employability that their programs be closely allied with the relevant industries.

Cosmetology is a case in point. Despite State Education Department predictions of an oversupply of licensed cosmetologists, students in the New York City high school programs get jobs, according to all those we interviewed. Connections between schools and the local salons surrounding them, plus central connections through an active Cosmetology Advisory Commission, an organization of black hair stylists and cosmeticians, a standing committee of the assistant principals, and teachers with 10-25 years of industry experience and contacts are responsible for this success. Attention to the changing market is a contributing factor. We have described the specific techniques cosmetology staff use to develop jobs and make contacts -- mailings to all shops in the area, student scouting of salons and cosmetics businesses, staff follow-up, and teachers who constantly advertise the availability and worth of their students to vendors, businesses, and the community. Cosmetology provides a good model of industry/school cooperation and job development that other programs and schools would do well to follow.

Data processing exemplifies the problems caused by economic conditions. The recession has affected data processing firms, at the same time that people all over the country have decided to enter the computer professions. The result is an oversupply of entry level workers, particularly in the New York City area. But this is not an excuse for the lack of school links to the field. The Business Education Advisory Commission has a subcommittee on data processing which has reviewed programs and has asked to continue its efforts into the coming year. This committee could be used to fortify the program's business connections. At least two schools have cooperative education programs in data processing listed in the Division of High School's course records, but in both these schools, staff said it was difficult to find students placements in data processing. There are exceptions, especially at the specialized business schools like Murry Bergtraum, which requires an internship of every student, and places students in data processing and computer positions. The centrally administered job placement efforts, including the central COOP, have almost no data processing placements for students.

Let us now examine efforts by the system as a whole to link the private sector and the schools.

1. Current Connections Between Industry and the Schools

There are numerous connections between the private sector and the schools. Formal structures for cooperation at the central Board level, several dozen work experience and job placement programs, and efforts by individual schools convey the impression that the

relationship is active and useful. In some respects, this is accurate. Yet many businesses in New York City are not linked in any way to the educational system, are unaware of the occupational training programs in the city schools, and have no idea that students are learning skills applicable to their businesses. While industry has participated in program development and evaluation, equipment consultation, job placement, teacher training, and identification of labor market needs, one private sector representative charges that the Board's efforts are all talk, inc. He says there is no comprehensive strategy to link industry and the schools, and that the Board must start treating the private sector as equal partners in the planning and implementation of occupational education programs.

The Advisory Council and its twenty-two occupational and special advisory commissions are the formal Board of Education structures for coordinating industry/school cooperation. Industry, unions, the Board of Education, parents, community groups, city and economic development agencies are represented. Mandated by state law, the purpose of the Council is to assist in determining "the many significant factors that affect training programs through a direct channel of communication with the industries they seek to serve..."* An executive secretary, appointed by the Board, coordinates the Council and acts as liaison between the Council and the Board.

The 19 occupational area advisory commissions and the three special interest commissions (on the handicapped, sex equity, and

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* Advisory Council for Occupational Education Status Report, April 1, 1981-December 31, 1981, February, 1982, p. 1.

youth employment -- the last in the planning stages) submit their recommendations through the Advisory Council to the Board of Education. The three main areas of involvement are curriculum planning, equipment and physical facilities, and identifying occupational trends and changes. In addition, other areas have included "scholarships, awards, job placement, teacher recruitment, student selection, and "preparation of budget requests." (Ibid, p. 2.)

In 1980, Help Wanted concluded there was a lack of central Board support for this structure, evidenced by a staff of a single executive secretary responsible for more than 50 commissions. Many commissions were completely inactive, and Council efforts fairly minimal. Since then, two more full-time professionals have been added to the office, and the executive secretary has been reviewing past activities, revitalizing commissions, and establishing mechanisms to insure a Board response to Council recommendations. These actions are beginning to turn the advisory structure into a working force. A list of this year's recommendations and their status is included in Appendix D.

Although some area commissions are still inactive, the two responsible for the fields we studied are among the more productive. This year, the Business Education Commission reviewed the State Education Department's new business curriculum, which includes a separate year of "Business Dynamics," or pre-vocational skills training. Believing that these employability skills would be better taught in the context of skill training, the commission helped design the notion of "integrated" courses, combining technical and work skills. The Data Processing Task Force reviewed

city programs and made recommendations about improving curricula and programs, but found much to approve. The commission also helped to develop the office skills training collaboration between the Board and CUNY, described in the previous section. Training teachers for business education and the new automated technology has become a recent focus; this summer, the commission arranged word processing training for 200 teachers at six corporations. In conjunction with Norman Thomas High School, the commission put on an equipment demonstration show, where vendors displayed their business machines. New members have been invited to join, and activities are expanding.

The Cosmetology Commission took part in the program's accreditation process. In cooperation with the Office of Trade and Technical Education and the Division of High Schools, it set up three industry-sponsored workshops for teachers and students. The commission works quite closely with the eight schools offering cosmetology and with the Standing Committee of Assistant Principals. In the past, it has had little contact with the central Advisory Council and the Board of Education, but it has worked with the Bureau of Trade and Technical Education.

- Although the Advisory Council and its commissions have not yet addressed all the issues of industry/school cooperation, we think the Board should concentrate on strengthening this structure, rather than adding new ones such as the borough commissions discussed in the previous chapter. Such duplication merely discourages active industry participation.

Membership in the commissions must be revitalized to include those industry representatives who can establish an industry priority for links with the schools. The commissions also must include people with the technical expertise to review curriculum and equipment purchases and those with industry connections who can secure job and training slots for students.

Another school link with industry is the Economic Development Council, a private, nonprofit agency which provides management and technical assistance to city services and job development efforts. EDC sponsors programs to provide the schools with information about and exposure to industry and careers. One is "Open Doors" which sends business people to speak to junior and senior high schools at the invitation of principals and teachers. An experimental program for business education pairs EDC member corporations and several high schools. This year, four high schools were "adopted" by corporations, and students were taken on tours of the firms' facilities, given previews of skill-testing for job hunting, coached in interview techniques, and allowed to "shadow" personnel. EDC also sponsors a school-based work experience program at three schools (EPIC - described in the next section and in the appendix), and provides technical assistance to the Board.

The Private Industry Council is an intermediary between the private and public sector, created by Title VII as part of the CETA legislation. The recent involvement of the New York City PIC in projects with Westinghouse High School (see the PAE project, p. 90) and Martin Luther King High School marks its first substantial cooperation with the schools. Linkages between the PIC and the

Office of Career Education are being made. As part of the PIC's increasing interest, a new program, BET-Youth, will eventually serve 750 young people in six or seven training programs.

Major corporations, usually through their community relations departments, have varying degrees of involvement with the school system. IBM is among the most active. This is partly due to a company policy of encouraging volunteerism and civic responsibility, and partly to the commitment of its representative, Alfred E. Brown, who serves on the Advisory Council and chairs the Board of Commissioners of Cooperative Education, the major job placement program at the Board of Education. The EPP believes that other corporations will realize long-term benefits and a more productive labor force if they commit resources now.

From the above descriptions, it is clear that there are opportunities for some students to learn about business and careers. Schools and programs sponsor trips to major corporations. Many schools have career days or nights, to which industry representatives are invited to make presentations. The Vocational and Industrial Clubs of America (VICA) sponsors contests in technical skill competence judged by industry representatives.

However, most students have not had a chance to learn first-hand about industry or business. This appears to be more a lack of exposure to particular occupational areas than to industry in general. For example, most data processing students have not visited data processing firms or installations within corporations. They have only a vague idea of the jobs available in the computer field and how to get them.

Abstract descriptions of careers and work in a classroom cannot replace exposure to the actual settings and personnel. All occupational

and career-directed courses should include a component where students visit those industries, and speak to the people who work in them.

* A review of occupational programs is needed to determine for each area what opportunities for exposure to that industry exist, and ensure that all students have a chance to take part.

2. Work Experience and Job Placement Programs

Beyond this exposure to jobs, students, industry representatives, educators, and the Educational Priorities Panel all agree that work experience is a vital component of occupational education programs that contributes to making students employable.

Work experience programs keep students from dropping out of school, offer economic relief, teach skills, and give students the work experience they nued to get a job after graduation.

"Kids are desperate for employment. They need jobs," says the director of the New York State Employment Service Counselors.

Work experience improves students' technical skills and their confidence in those skills:

> At first I was a terrible typist. Only 30 wpm. Now I type really fast. I felt unprepared; I don't think the teachers take typing seriously. And the class is so big you never get individual attention. Now I work for Pat and I take care of the typing, phones, and as things comes up she tries them out on me. At first I was so nervous I couldn't do anything but now I get my work done real fast. I'm not nervous anymore.

A cosmetology student said working is good "because you pick up speed, get really agile, and learn a lot of tricks." Others said:

> We went to Jamaica Hospital for practice. We got paid through a work/study program. It was a really good experience. It prepares us for getting out there on our own. It makes us faster too... Everybody wants us to have experience. But how are we going to get experience without working? See, that's why this hospital program was so good. I can say that's what I did -- that's my experience.

> It improves my skills if I work in a shop. That's why I'm not going to take a Gristede's job because at least in a salon, we're learning for the future; even in this class after school we're learring for the future... it'll pay off.

Work experience, students will tell you, even prevents crime:

> These summer work programs are important. If you have work you're busy. It keeps kids off the streets. Why do you think all those kids are ripping everybody off -- they have nothing to do and they have no way of making money.
>
> If we get jobs after school it's a big help. You better get jobs for kids -- or else they'll be on the street.

Most important, students recognize that work experience in high school increases their chances of finding work when they enter the job market after graduation:

> Just having the experience of working in an office teaches you how to communicate and act -- you get to know what business is like. I'm gonna know a lot more, I'm gonna know how to deal with things because I'm used to it. It's a big advantage. You take a kid just getting out of high school -- she doesn't know any of the things I know or do and she is older. It's important to have experience like this because that's what companies want.

The director of COOP concurred:

> When these kids work in these companies, they're going to come out productive. When companies are paying, you better believe they're going to take this raw material and make it productive... Corporations don't deal with us to be altruistic or help kids. It's their way of looking future employees over and deciding whether they want to hire them after they graduate.

Working Youth, (INTERFACE, 1981) a study of 400 businesses, found that work experience was the single most important qualification for an applicant to possess. This and other employability skills -- good attitude, motivation, willingness to work, appearance, speech, reliability -- along with basic literacy skills are most often cited as what employers want and students lack.

The EPP believes that work experience should be built into every vocational education program.

There are about 30 different work experience arrangements in the schools and at the central Board, but they serve only a small portion of the eligible students. Even Board personnel are not certain of the number of programs or students served. Here are some of the programs available. (Also see Appendix E.)

a. Cooperative Education (COOP) serves 13,500 students in 92 schools funded by tax levy monies. Only 65 high schools have significant programs with a coordinator. Students may spend one week in school and one week on the job, or work after-school. Job development and matching are done by school-based COOP coordinators for the After-School program and by central Board personnel for the alternative week program. Students are paid.

b. The Youth Employment Training Program provides federally subsidized employment in the private and public sectors for low-income youth. In FY 1982, $1.2 million was allocated and 655 students placed; in FY 1983, $500,000 was allocated and 250 students will be placed.

c. The Joint High School Program of the New York State Employment Service has 43 job placement specialists in 46 schools (mainly academic/comprehensive), full and part time. The school supplies a room and a phone and the state pays the counselors' salaries. 22,000 students registered in 1981-82, and 13,644 were placed.

d. Training Opportunities in the Private Sector (TOP). In its second year of operation, TOP is one of the few programs providing students with placements using their technical skills. OCE plans to expand the program next year from its current 800 participants.

e. Partners for the Advance of Electronics (PAE) at George Westinghouse High School is jointly sponsored by the Board and the PIC. Industry participates in curriculum review, job development, and placing students in paying jobs. In 1982, approximately 100 students were placed.

f. The Citibank-Martin Luther King program, in conjunction with the PIC, offers clerical training. Students progress through a series of on-the-job experiences and summer jobs during a 2-3 year sequence. The program is projected to serve 90 students in 1983-84.

g. Education through Private Industry Cooperation (EPIC) is in three schools. Students do job development, and then are placed in paying jobs, which are mostly clerical. Fewer than 200 students a year are served.

h. Career Bridges is a non-paying career exposure program in four high schools. For ten weeks, students work in placements for four days a week and spend the fifth day in school.

i. The Cooperative Apprenticeship Program (CAP) provides placements to 150-200 students in seven trade and technical areas.

School participation in work experience programs is widespread, but some occupational areas provide more slots than others. Of the schools we visited, only four did not participate in the COOP program.

Although six of the eight cosmetology schools we visited did not have a COOP program in cosmetology, five of those had some kind of work experience arrangement for their cosmetology students. Teachers place students in after school jobs in salons and department stores. At least three of the cosmetology programs had students providing services to the elderly at nearby senior citizen centers. Two others provided services in school to staff and community residents (for a fee), as well as to students. At least one school has fairly limited options, justified by a principal who said that the 1,000 hour instruction requirement made scheduling work experiences difficult, and that students all get jobs on graduation anyway.

There are few placements for students in data processing and no systematic job development in this occupational area. One exception is an arrangement at Edward R. Murrow High School where,

through the Executive Internship Program,* New York City Technical College takes students as interns to work on computers. They then work summers in paid positions, and if they decide to attend college there, they can continue in these paid jobs.

Neither the director of Cooperative Education nor the New York State Employment Counselor seemed aware of specialized skills such as data processing and word processing that students were learning in school. It is true that students hired to fill clerical jobs sometimes move on to data processing jobs when supervisors learn of their ability, but there is nothing in the placement operation that makes this connection for the student.

There are a number of commendable school-based attempts to provide students with work experience. Among the most notable is Murry Bergtraum High School for Business Careers. Bergtraum requires every student to serve in an internship either inside (unpaid) or outside (paid) the school, during the 11th and 12th grades. Job development and industry contact are managed by the Assistant Principal for Administration who has been assigned to this role since the planning of the school in the mid-1970's. Aided by its proximity to Wall Street and the inclusion of the Lower Manhattan Business Association in the school's planning, Bergtraum's job development has been extremely successful. The Assistant Principal holds breakfasts at the school for potential employers to introduce them to the school and its students. He takes the Assistant Principal for Marketing

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* In the Executive Internship Program, students are assigned as assistants to executives for one full term, and attend school only to participate in weekly seminars with teacher-coordinators.

and an accounting teacher with him to job development meetings with businesses, since they "speak business and can best hook a student up with a specialized job so a kid gets real training." A newsletter publicizing the school's programs and training efforts is sent to educators, community newspapers, employers, and alumni.

We believe that the Bergtraum model is one to be copied by other schools. Although Bergtraum's location and initial planning process have made it easier to find placements in the local area, the success of the internship component is due to the effort and creativity of the school administration. Other schools could learn from this model, and the AP for Administration said he is willing to share his expertise in approaching industry and developing jobs. Even when outside and private sector placements are limited, staff from a number of schools said the Board and the schools themselves have plenty of work that could be done by students in work/study arrangements. For example, at George Washington High School, "on the job training" means students work for teachers in the school, receive credit, and are graded on attitude, attendance, promptness, and diligence.

However, the problem of the lack of local commerce around a school does need special attention. Some schools are able to overcome it. For example, in the South Bronx, where a program had an active assistant principal and good connections to industry, no jobs were available in the local area, but students willing to travel to Manhattan were placed. In contrast, where local industry was nonexistent and the program's efforts were lax, our researchers found the only cosmetology students who said they wanted but could not get jobs. In data processing, staff at schools outside of

Manhattan said that most of the data processing jobs are located in Manhattan, and that their students would not travel to jobs outside their borough. We are not certain how accurate these perceptions of the local opportunities are; one school told our researchers they were "in the middle of nowhere," and there were no data processing jobs in the area, while a school 15 minutes away said there were many possibilities on the main borough thoroughfare.

Schools located in non-commercial and deteriorating neighborhoods need extra assistance in job development and placing students in work experience settings. We recommend that schools in neighborhoods where job placement opportunities are limited be identified, and become the focus of special job development efforts by a committee composed of representatives from the Advisory Council, each occupational area commission, and the new Youth Employment Commission.

There are a number of additional issues that deserve attention. The Board is beginning to address the problems of coordination and potential duplication among programs that were cited by "Help Wanted," but programs are still administered by different offices. School-based efforts sometimes compete with those of the central Board, so some employers are contacted numerous times. Help Wanted had noted that potential employers did not know whom to call if they had a job available, and we found that employers often were not aware of alternative arrangements and scheduling possibilities. Although the COOP presentation is supposed to include information

about both the full and part time programs, at least one employer who had been contacted and could not accommodate an alternate week arrangement did not realize he could have an after-school worker instead.

In addition, students are not automatically referred from one program to another if they cannot be placed by the first program. Procedures for sharing placements and referrals between COOP and the New York State Employment Counselors are being tightened, although they are still informal. Similar coordination should exist among all work experience programs.

To alleviate these problems of coordination among work experience and job placement programs, the EPP recommends the following:

- Central COOP and other central job development efforts should distribute to the schools and the school based programs a list of companies they have already contacted.
- A central clearinghouse for all job placement information should be created. Employers could have the option of having the job listed in the central office or being referred to a particular school or school based program.
- All central work experience programs should have one job development system, and a standardized procedure for referring students from one program to another.

It is also doubtful whether work experience programs are adequately advertised to students. Although they are listed in the High School Directory, at least two students who needed jobs had not known about the COOP program and were saved from dropping out by attentive teachers. Three or four others "accidentally"

learned about COOP; one found it on a blurb on her program sheet, the others saw signs in the guidance office, but none was advised in person by those who helped them plan their programs.

The most important question is how many students are served by all these programs, and how that compares to the number of students who need placements. Board personnel don't know. We were told by students from one school that they spent hours waiting in line for the employment counselor and finally gave up.

- The Advisory Council and OCE jointly should examine the number of work experience programs and the number of students being served.

What is clear, however, is that industry is not providing work experience on anywhere near the scale that would be needed to serve the approximately 85,000 students enrolled in occupational education programs. Our survey of 52 businesses revealed that only seven hire high school students, that only the largest firms have the resources to provide in-depth technical training, that 15 companies wanted only experienced people, and that five promote from within and train only insiders. (See Table 5.)

Thus it is clear that enough on-site training opportunities will not be available in the near future for all who need them. However, efforts to identify work experience placements and to expand programs like TOP, CAP, and PAE should be intensified.

3. Work Experience Placement and Development

A question raised by several persons our researchers interviewed was who should be doing job development and job matching? In an

TABLE 5

INDUSTRY - EMPLOYMENT - LABOR MARKET NEEDS

What is Industry Looking For?

Reason	# Citing it as First Reason	Second Reason
Want Only Experienced People	11	4
No W/D Process[illegible]quipment (or have a subsidia[illegible]doing that work)	9	-
Office is too small	8	-
Not Hiring Now/Hiring Freeze	7	3
Hire Through Office in other states	4	-
No Part-time work available	2	1
Prefer to Train/Hire Insiders	2	3
Company Doesn't Hire Teenagers	2	-
Want Experienced Salespeople	2	-
Must be over 18	1	1
Not aware of skilled kids	1	5

Will consider hiring teenagers in the future	9 firms
Won't consider hiring teenagers due to	
- time constraints	2 firms
- other reasons	4
- size of firm	9
- experience requirements	11
Have or Had programs (CO-OP) with schools	7 firms

occupational area like cosmetology, teachers at the school level seem most able to identify available jobs and match their students to the appropriate employment situation. In data processing, however, a lack of industry connections, a tight job market, and a predominance of jobs in the mid and downtown Manhattan areas make it more sensible to do job development through a central source. However, technical placements are currently quite limited: TOP and CAP together serve no more than 2,000 students, and they have no placements in data processing and a number of other technical fields. Central COOP has a tiny percentage of technical placements; the vast majority are clerical jobs, not including word processing or even data entry. In addition, as we noted, central COOP personnel and New York State Employment Counselors were not always aware that many students have technical skills.

There should be a job development and placement effort for every occupational area. It may be conducted either centrally or at the schools.

- We recommend that each occupational area, through its bureau, standing committee, and/or advisory commission, ask the following questions:

  - Are there adequate work experience opportunities in this area for all students who want them?
  - Who develops the jobs that are available in this area?
  - Who has sufficient industry contacts to do job development and matching?

The choices to do job development and placement are the central Board, the occupational area, and the schools.

- For non-technical placements, for clerical jobs, for jobs

in Manhattan, and for placement of students who are not seeking positions in a particular occupational area, job development and matching should be done centrally in a coordinated system.

- For technical placements and training in particular occupational areas, the responsibility should rest with the occupational area, including the advisory commission, any industry associations and organizations, and the school based staff. Central programs like TOP and CAP should be well coordinated with any occupational areas they serve.

- Local job development and matching should still be done at the school level, with assistance from the central Advisory Council and relevant commissions when necessary.

- There should be a mechanism, such as a semi-annual memo, informing work experience and job placement program administrators about the technical skills students are learning.

Successful job development depends on establishing a network. Most of COOP's job requests now come from "reorders," the result of 69 years of operation. Teachers who have spent years working in the industry and who maintain contacts are a good source of jobs in that area, and should be doing job development. Assigning already overworked teachers who have neither industry connections nor professional job development experience is an inefficient allocation of resources.

Ted Small, President of the Private Industry Council, believes that the Board's outreach to industry has been insufficient, and that only a small percentage of the 75,000-100,000 companies that are large enough to consider hiring high school students have been contacted.

But teachers and Board job developers say the schools get "bad press," and that they have to spend a great deal of time breaking down negative images. They believe the Board needs to conduct a public relations campaign. The PIC president and the EPP agree that outreach is necessary, but a public relations campaign emanating from the Board itself would lack credibility. What is needed is a recruitment campaign, with third-party endorsements by satisfied employers of high school students, private sector representatives, and organizations which link the public and private sectors.

4. The Use of Labor Market Information by the Schools

What kind of information about the labor market and economic situation should the schools compile and use in planning and revising occupational education programs? At least one private sector representative says, "none," because the schools should be providing basic skills and pre-vocational training rather than specialized skills. We disagree. Even if the schools provided only career information and no special training, school staff and students must understand where the jobs are likely to be, and what kind of preparation is needed to fill those jobs. We believe that the schools should continue to provide occupational exposure and training, and think it is important to plan programs based on sound data.

Everyone admits that the standard sources of labor market information are inadequate for planning of this type. For example, projections about job availability and economic outlook published by the Bureau of Labor Statistics are often based on assumptions about declining inflation and unemployment rates, that have not been borne out. In addition, BLS utilizes information from the NYS Employment

Service which does not include many small firms not using the state agency for employee referrals. BLS projections also do not indicate the level of turnover in an industry, but rely instead on the number of new jobs that are created in an industry for employment planning purposes. In the past, the Board has tended to rely mainly on newspaper articles for information on employment trends. Two years ago, the idea of borough mini-plans was introduced, and a short analysis of occupational needs by borough was included with the Board's 1982-83 request for program proposals.

In May 1982, OCE's Planning and Development Unit published comprehensive analyses by borough of the labor and employment picture, demographic trends, Board of Education occupational education programs available to both secondary and adult populations, community college training courses, and the projects which have been funded by VEA and tax levy funds for the 1982-83 school year.

In addition, they have sought the assistance of the Economic Development Council, which has developed a "Plan to Forecast Jobs in New York City." The EDC plans to bring together representatives of business and occupational education training programs:

- "To develop a forecast by job title of the total number of jobs and the number of job openings in the public and private sector for each year of a five year period.
- To develop competency statements for jobs covered in the forecast which describe the education, training and skills needed for job performance.
- To develop the job codes and titles to be used for the forecast.
- To identify the changes in technology, products, and processes that make job titles obsolete, create new job titles, or change the competency statements.
- To relate the forecast to the training output of public and private organizations.

- To assist organizations to modify their training to adjust to the forecast."

(Economic Development Council, Job Development and Training Unit, Plan to Forecast Jobs in New York City, June 1982)

The forecast is supposed to cover entry level jobs "that can be filled by graduates of high schools and community colleges and are appropriate for them." Ten to fifteen industry clusters will be examined in depth during the first two years, and existing labor market data will be reviewed. A major focus for data collection will be a straightforward survey of business and industry, asking, "How many people do you hire a year?" and "How many do you think you will hire next year?"

The EPP endorses this effort and urges that it begin as soon as possible.

How can the schools respond to changes in the labor market? They can at least keep themselves and their students informed of trends. Furthermore, curricula and programs must be designed with maximum flexibility, so that as the need for specific skills declines, they can be replaced with more useful ones. Constant input by industry through the Advisory Council/ Commission structure, and through the Planning and Development Unit of OCOE, should be sought. A system for disseminating information to the school level of operation -- to administrators, teachers, and students, should be devised. Conferences within occupational areas, addressing this issue, should be held regularly, particularly in those areas most affected by the technological revolution.

V. EQUIPMENT AND SUPPLIES

We have seen that variations in the type of equipment and the degree of students' access to equipment greatly affects vocational program offerings. This chapter details how equipment and supplies are purchased and maintained. It demonstrates that, while schools often lack adequate funds for up-to-date equipment and for repairs and supplies, this is not the only reason for serious shortcomings in vocational education equipment and supplies. Poor communication and coordination between the schools and various central offices and lack of clear priorities often prevent the best use of funds. Rigid restrictions on the use of funds are sometimes counterproductive. However, important gains have been made in the coordination of federal and tax levy funds since our first study. New procedures for planning purchases, recently instituted, should yield greater efficiency in the future, but remain too complicated. Greater decision-making authority at the school level would improve the process.

In addition to cosmetology and data processing, this research utilizes the electronics and medical assisting programs, because they have different needs for equipment, and different conditions which affect purchase decisions. For example, both electronics and data processing are fields where technology is changing at a rapid pace, and equipment is expensive. But while the development of less expensive personal computers enables their purchase for the schools, electronics equipment is still prohibitively costly. Medical assisting and cosmetology are both fields that require standard equipment and large amounts of supplies. Electronics

and cosmetology are offered primarily in vocational schools, while data processing and medical assisting are given mainly in comprehensive schools, and are more easily adapted to regular classrooms.

1. Equipment

The EPP's earlier study, Help Wanted, identified the following problems with the purchase and use of equipment:

- poor planning and the lack of adequate consultation that resulted in unjustifiable purchases of equipment;
- many pieces of equipment remaining unused because of lack of funds for installation, maintenance, or repair;
- equipment that was outmoded or unnecessary for training;
- in some programs, a lack of trained staff to give instruction on certain machinery.

Since the publication of Help Wanted, progress has been made in dealing with some of these problems.

Federal Vocation Education Act money (previously the sole source of funds for equipment) distributed by the State Education Department is shrinking. However, in 1981-82, due to the joint efforts of the Board of Education and the EPP, the City Council allocated tax levy funds for equipment for occupational education programs for the first time.

With the new tax levy money available, the Board can now make better use of its VEA funds, since it can fund with tax monies those programs or parts of programs not fundable under VEA. For example, previously, VEA funds were frequently foregone because they could not be spent within the 12 month limit. Now, tax levy funds can

ready a physical plant in one year, so the VEA funds can buy and install the equipment within the next 12 months. Tax levy funds can support the second or third year of projects which were not renewed by VEA, since VEA funds are usually seed money for new programs. And tax levy funds can begin to make the capital improvements so sorely neglected in the schools since the start of the fiscal crisis in 1976, but not fundable by VEA.

The EPP was interested in examining the impact these new funds would have on the schools' ability to provide vocational and occupational programs. We wanted to know whether existing equipment is being repaired and maintained, outmoded equipment replaced, staff trained to use updated machines, and appropriate new equipment purchased.

The study of equipment sought to answer the following questions:

- Is the equipment outdated?
- How are the decisions made on what new equipment to buy?
- How well does the process work?
- Once the equipment is purchased, are there adequate supplies to accompany its use; and is it properly installed, maintained, and repaired?

All of these questions aim at making the most of a limited amount of money for vocational and occupational training; providing current training for students who want jobs upon graduation; giving those who want further education a strong feel for a career choice; and convincing students who might otherwise be inclined to leave school, to stay.

To know what to buy, those making purchasing decisions should first know what equipment is already in the schools and its condition.

Most schools do not keep a formal inventory of equipment. They do not tabulate what equipment they have, what is in working order, and what outdated equipment is in storage.

The Bureau of Trade and Technical Education (which has responsibility for electronics and cosmetology) has begun to keep an inventory of equipment purchased since 1980. However, they do not receive copies of all payment vouchers, so their records do not necessarily reflect exactly what arrived in each school. The consequence of the lack of accurate records is that planning is difficult. Not knowing the age of equipment means schools cannot anticipate needed maintenance, repairs or replacements, or judge whether equipment could be repaired rather than replaced. Such judgments would require estimates, service calls, and time. In many instances, money is available for new equipment but not for repairs or supplies. One school that did not have OTPS funds to purchase sample office forms for its medical office assisting program instead received 25 transcribers, when they had approximately 10 to 15 broken transcribers that might have been repaired.

2. The Grant and Proposal Process

In order to purchase new equipment, a school must first submit a funding proposal. Until the new tax levy money was available, all these proposals were for VEA funds. Now the source of money is not specified at the school level but is determined at the central Board, after all requests have been received. Neither source can fully fund all the equipment purchases that the schools would like to make. In addition, it is likely that available money for equipment will continue to decline. Because the EPP's central concern is the

most appropriate expenditure of dollars, we examined the development of proposals, the setting of priorities, and the review mechanisms in place, including industry involvement in the proposal process.

The Board of Education has made several changes to improve the development of proposals. Many old problems have been solved although some gaps in communication still exist. In 1981, a new office was created, among whose responsibilities are to oversee the proposal writing and ordering process, to improve communications among the different agencies involved, to coordinate the different stages of work needed for ordering the equipment and to improve the overall planning for distributing resources.

A special assistant to the Chancellor, Malvin Cutler, developed a procedure for tracking equipment proposals funded with tax levy money. The changes in planning and communications have influenced the procedure for VEA proposals as well, although the special assistant's office follows only the work related to tax levy dollars.

School and central Board personnel reported that the new procedures have begun to improve coordination among the agencies involved in proposal development, although they also commented that the procedure was not fully implemented in 1981-82, and that further improvements would result from next year's complete planning cycle. Table 6 shows the proposed development process.

A. The Development of Proposals: Process and Problems

The development of proposals for vocational education equipment and programs involves school, borough, and central board personnel.

In the fall, the Office of Occupational Education sends a request for abstracts (including a statement of missions and goals) to schools, bureaus, superintendents, programs, coordinators and community school boards and superintendents. Although "approvable" program concepts have been included in the past, there has been no breakdown or explanation of VEA categories for funding, or the amounts projected by the state for each of those categories. In addition, the schools do not receive an estimate of expected State revenues. In short, the schools receive only the barest outline of information from which to develop proposals.

At the school level, assistant principals for each occupational area are usually responsible for proposal development. In at least one school, there is a coordinator for grant writing who is allotted some compensatory time for this purpose. Even this extra time is not sufficient, however, and most school staff who write proposals do so on their own time. A number of administrators said they simply could not manage proposal writing in addition to their administrative and supervisory duties. Many school people complained that the process was unfair because their grant-writing ability did not reflect their ability to develop and implement quality programs.

B. How Are Decisions Made About What Equipment to Request and What Programs to Develop?

Setting priorities for equipment purchase and program development is supposed to rest primarily with the individual high schools. How appropriate these priorities are, however, depends on the information

TABLE 6

Proposed Steps in Purchasing Vocational Education Equipment

• OCE asks the schools for a three year overview of their vocational and occupational programs. The schools involve teachers, advisory councils, APs and students to determine their program.	SPRING
• Based on this plan, the APs draw up abstracts for equipment needed for new programs, or expanding or updating existing programs. These are prepared in consultation with the OCE bureaus.	MAY
• The principals rank the abstracts in a single series of priorities and submit the list to their borough superintendents' offices.	MAY
• The borough superintendent and his staff combine all of the schools' requests into a single list of priorities and submit them to the Division of High Schools. They are now forming borough-wide advisory councils to help establish overall priorities.	JUNE
• The Division of High Schools reviews the priorities and adjusts them to meet its city-wide priorities. Then, the priorities are reviewed and adjusted by central OCE staff, the Advisory Committee and the Division of Special Education.	SUMMER
• The Chancellor's office gives a final review of the abstracts and priorities.	
• OCE staff, working with DHS and Mal Cutler, determine what should be funded with VEA money and what should be funded with tax levy funds.	
• Simultaneously, Division of School Buildings and Bureau of Supplies receive copies of the abstracts. DSB begins site examinations to make sure necessary building modifications can and will be made. BOS begins putting contracts in place so equipment can actually be ordered when the money becomes available from the state. Staff from the OCE bureaus, Mal Cutler's office and DSB visit the schools as necessary to help develop the proposals and make sure the desired equipment is appropriate and can be used.	SUMMER - NOVEMBER

. Purchases using tax levy funds begin.	NOVEMBER
. Proposals are prepared based on the abstracts.	BY NOVEMBER
. The VEA proposals are sent to Albany for review.	FEBRUARY
. The schools are sent a chart of what would be funded if full VEA and tax levy funding were provided.	
. Albany asks OCE for revisions, clarification, etc. on the proposals.	SPRING
. VEA funds are allocated and the OCE bureaus send the purchase orders to the Bureau of Supplies.	MAY OR JUNE
. Purchase orders are sent to the vendors, for whom contracts are already in place. Copies of the purchase orders are sent by Mal Cutler's office (for tax levy programs) or Stan Barondes (for VEA programs) to the principals.	
. The Bureau of Supplies notifies Stan Barondes of the status of all tax levy purchase orders	ONGOING
. BOS tracks all orders that are outstanding for longer than 45 days. They keep Mal Cutler's office informed on the status of the orders.	

available to persons making those decisions.

Some assistant principals have more elaborate approaches to priority setting than others. For example, the AP for cosmetology at Jane Addams first conducts a needs assessment by surveying staff, students (especially those in COOP), the standing committee of Cosmetology APs, and the Cosmetology Advisory Commission, and by using information from the Bureau of Trade and Technical Education. The Assistant Principal in charge of Data Processing at Murry Bergtraum High School consults his school's Advisory Council on Data Processing, develops a plan, and then discusses it with the Office of Data Processing at the Board.

School personnel in the electronics field rely heavily on the companies that sell equipment to the schools for information about current equipment and for advice about what to buy. Vendors present equipment shows and are invited to the schools to demonstrate. In schools that have no involvement with employers in electronics fields, the teachers may rely solely on the vendors' information. Central personnel at OCE and the Division of High Schools felt that although the schools sometimes rely too heavily on the vendors for program design, the vendors' information is an important component in the decision-making process. They felt that industry involvement should be encouraged for these schools. However, industry representatives emphasized, and we agree, that vendors, because of their special interest in selling equipment, should definitely not be the primary source for information.

Part of the function of the various bureaus within OCE is to collect information on equipment. While they are the appropriate offices to provide assistance, they are generally unable to offer in-depth help in proposal development because of understaffing, and, in some areas, lack of sufficient knowledge of the field or the equipment. Several electronics APs said they could reduce the time they spend preparing proposals if they were given more guidance on the equipment available and in use elsewhere in comparable or related programs, or, at the very least, if they were helped to solicit the requisite number of bids for their requests.

The director of the Bureau of Supplies said that many of his buyers have developed expertise in their fields and could serve as valuable resources to the APs in developing their programs. None of the school personnel we interviewed had ever used this resource.

C. How Are Proposals Reviewed?

After the proposals or abstracts are written with advice from several outside sources, there is a review process which includes school, borough and citywide offices, as well as industry input through three levels of advisory councils. In practice, our interviews showed that industry involvement varies considerably from school to school and borough to borough. The process has not been particularly smooth. Many of the difficulties were attributed to the fact that the procedures are being implemented for the first time.

The School. One area of confusion at the school level arises in setting priorities among different vocational areas. Principals said that they do not set priorities among program areas because different funds are available for the different programs. However, some central Board personnel report that there are no longer predetermined funding levels for occupational areas; others indicated there are general guidelines. In any case, principals said they set priorities for proposals within each occupational area. According to central Board personnel, however, every principal had submitted the school's 1983 proposals in one, ranked list. Apparently, misunderstandings abound, and should be cleared up.

The Borough. This was the first year that the borough superintendents have been involved in the setting of priorities. Our interviews showed that some offices do not have the staff in place to review all of the proposals in detail and determine borough-wide priorities, although at least one borough has been able to complete the process to its satisfaction.

The borough superintendents' offices were asked to form advisory committees as well, and they met with varying levels of success. One borough had good industry and labor representation at its first meeting, although the committee did not have time to get involved in this year's review of proposals. In another borough, no industry or labor representatives came to the first meeting, and the planning proceeded without them.

The Central Board. Central offices differ on priorities. OCE's Office of Planning reported that it had received two sets of

conflicting priorities from the Division of High Schools, one from the borough superintendents, and a second from the central office. The Division of High Schools reported that OCE's priorities did not match theirs and even after an apparent reconciliation of the differences, the equipment ordered did not meet the Division of High School's needs. Apparently, although these different levels of review were intended to coordinate the decision-making process, they have instead added new layers of conflicting priorities. Both offices have said that they took "initial" measures to prevent this from happening again, and both cited improved communication between OCE and DHS as one of next year's goals, but no specific solutions were mentioned.

Different bureaus have different criteria for recommending that proposals be funded. John Vitale at the Bureau of Trade and Technical Education gives priority to those APs who "take the time" to write proposals; until this year's addition of tax levy money, he gave priority to those proposals which did not require building renovations. He also reviews the schools that had received funding over the past 3-5 years to insure an equitable allocation. Norman Watnick at the Bureau of Business Education examines whether there are personnel capable and trained to offer the program, how committed the principal is to that program and to business education, and how likely it is that the principal will institutionalize the program after the VEA or extra tax levy funds are exhausted. Watnick also said he was more likely to recommend that funding go into schools with programs that were already well-developed, such as Norman Thomas or Murry Bergtraum. Despite this expressed preference,

neither of those schools has ever received VEA monies for its data processing program.

Many of these problems occur because of the different focus of the schools and the central Board. The schools are concerned with total course offerings, and with achieving a balance within their programs, whether they are a mix of vocational courses or a combination of occupational offerings and academic specialties. The process within the central Board, however, does not consider the school-wide picture. All proposals are divided according to occupational area and are funneled through the bureau head for that area. In some cases, this has resulted in a change of priorities from the school's. It is possible that this problem will be corrected through the inclusion of the borough superintendent's office in the review process, and we recommend that there be a special effort to do this.

School personnel still feel that some decisions are made centrally without consulting the school. While these gaps in communication occur in requests that were to be funded through VEA grants, not tax levy monies, the school personnel are not concerned with this distinction and perceive the whole system as badly managed. For example, one school had a request for 18 electronics training stations reduced to five, without consultation. Another school received insufficient funds for a key program, while a second, lower priority program received funds that would have made the first program viable. This was corrected after protests by school personnel.

Many people complained that the distribution of grant money was inequitable. Numerous data processing staff reported that "Bergtraum and Norman Thomas get all the VEA funds," and yet, as we mentioned, neither school has ever received any money beyond its initial tax levy allocation when the schools were built in the early 1970s. We found these misconceptions to be quite common among school people, although to be sure, there are decisions that appear to be and may in fact be arbitrary or inequitable.

Some problems are created by combining various school needs into an umbrella proposal. When this year's medical assisting requests were incorporated into an "umbrella proposal" for common VEA requests, some unnecessary equipment was ordered for schools whose specialized needs were not accurately reflected in the proposal. One podiatric program received materials that a regular nursing program would have needed.

One last issue arises: in the spring of each year, schools are asked to submit requests to use funds that could not be spent as originally intended (primarily because of non-delivery or unavailability of equipment). School personnel are not always able to respond in a timely way and they say that sometimes these "windfalls" are spent on large purchases that are not needed as much as smaller ones that would be more difficult to purchase quickly. Sometimes the schools simply lose the funds.

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Many people complained that the distribution of grant money was inequitable. Numerous data processing staff reported that "Bergtraum and Norman Thomas get all the VEA funds," and yet, as we mentioned, neither school has ever received any money beyond its initial tax levy allocation when the schools were built in the early 1970s. We found these misconceptions to be quite common among school people, although to be sure, there are decisions that appear to be and may in fact be arbitrary or inequitable.

Some problems are created by combining various school needs into an umbrella proposal. When this year's medical assisting requests were incorporated into an "umbrella proposal" for common VEA requests, some unnecessary equipment was ordered for schools whose specialized needs were not accurately reflected in the proposal. One podiatric program received materials that a regular nursing program would have needed.

One last issue arises: in the spring of each year, schools are asked to submit requests to use funds that could not be spent as originally intended (primarily because of non-delivery or unavailability of equipment). School personnel are not always able to respond in a timely way and they say that sometimes these "windfalls" are spent on large purchases that are not needed as much as smaller ones that would be more difficult to purchase quickly. Sometimes the schools simply lose the funds.

C. Recommendations for the Proposal Process

As described in Chapter II (pgs. 74-75) the EPP recommends that the Borough Advisory Council be eliminated and OCE and DHS should clarify their roles. This applies as well to their roles in proposal decision-making.

Once the roles of the Advisory Councils have been clarified, OCE, DHS, principals and assistant principals must redefine their roles to avoid repetitions and reversals in their part of the decision-making process.

Derived from specific information collected in this study and from previous EPP studies and its ongoing contact with the school community, EPP's recommendations for dividing these responsibilities are based on two principles:

a. School personnel -- principals, assistant principals and teachers -- must be the ones to determine the programs offered in their school. Centrally-determined goals must be flexible enough to allow the schools to develop their own programs.

b. People who give advice or make funding decisions about programs or equipment must have an expertise in their area.

EPP recommends the following changes in the current process in order to implement these principles. These changes are one way to strengthen the role of the schools in determining their specific program offerings, clarify the broad city-wide vocational training needs and directions, and reduce redundant or unnecessary work.

1) City-wide goals should be articulated before the process of developing proposals begins, not during or at the end of the process, as is currently the case.

2) The borough superintendents, working with the Division of High Schools, should determine how funds will be distributed within each borough.

3) The superintendents should give the schools rough estimates of the amounts of money they can expect before they begin preparing their abstracts. Schools should be asked to set priorities and submit abstracts within those funding restrictions, or 10-15 percent above in case more money is available.

4) If the principals see a need to make any changes or to limit the total number of abstracts, they should first consult with the appropriate APs or chairpeople and then inform them of the final decision.

5) Superintendents should review the abstracts to see that the borough has a diversity of programs. Where there is a repetition of similar programs, there should be a clearly defined need or demand for all of them.

6) After conducting their review, but before going back to the schools for modifications, the superintendents should meet with DHS and OCE for their preliminary approval.

7) Once the abstracts have been approved, OCE's bureaus should develop the actual proposals; the Bureau of Supplies should draft purchase orders; and the Division of School Buildings should make sure that equipment can be installed.

8) OCE bureau heads and the Bureau of Supplies should collect and disseminate information among the schools on their experiences with particular pieces of equipment and particular vendors.

3. Purchasing

Once proposals have been approved by the state for VEA funding, or by the Board for tax levy funding, the school personnel need to know what equipment they can expect to receive, so that they can plan programs and schedule students, and so that deliveries do not sit unclaimed at the main office. However, our interviews showed that schools often were not kept informed of purchases.

Clearly, there are constraints on the timing of this notification. VEA grants from Albany are sometimes delayed, tax levy allocations must wait until the city budget is approved, and even when orders have been processed, vendors may not deliver all of what was ordered or they may delay delivery. Nonetheless, the schools do not always

receive even the partial information that is available. Our interviews uncovered the following gaps in communication about orders and deliveries:

A. Orders

Department APs and chairpeople reported that they do not know exactly what has been submitted to the State Education Department for VEA funds. Nor do they always receive copies of approved purchase orders. This problem has apparently been addressed for tax levy purchases (the OCE staff member who reviews tax levy proposals says he sends a copy of every final purchase order to the high school principal), but there is no similar procedure for purchases made with VEA funds.

The reason for the lack of notice is that the Bureau of Supplies does not have a consistent procedure for reporting its decisions. Staff members interviewed said they usually notified the Office of the Special Assistant to the Chancellor, but sometimes contacted the schools directly.

These problems are made worse because school personnel do not consistently keep copies of abstracts, proposals or purchase orders that they send to the OCE Bureaus.

APs also reported that they did not always know if the principal had received reports on their requests, or if the school's supplies secretary had received information.

Finally, school personnel do not know whom to contact for information about the status of their requests. Some contact the bureaus; others call Mr. Cutler's office; others call the Bureau of Supplies or

OCE directly. The people we spoke with in each of these offices are willing to track down the information but they often do not have it themselves.

B. Deliveries

Additional confusion occurs over deliveries. Deliveries to the schools are not labeled with the name of the appropriate AP or with the title of the vocational area.

In addition, schools said they were not notified about delays or changes in outstanding orders. APs often called OCE bureaus, but if they did not initiate the contact, they did not receive word.

C. Recommendations for Tracking Proposals and Equipment Orders

In order to plan new programs, principals, APs, department chairman and teachers must know what equipment they will receive as early as possible. The following steps are one way to insure that they receive this information.

1) All school personnel should be given a written explanation of all of the steps for ordering and receiving equipment.

2) Each AP or department chairperson should keep copies of all documents related to equipment purchase in a central file. The principals should note which proposals were submitted to the superintendent.

3) OCE bureau heads should be responsible for sending each AP or chairperson copies of all of their VEA proposals submitted to the state for consideration and their requests submitted for tax levy funding.

4) The bureau heads should send copies of every purchase order submitted to the Bureau of Supplies to the appropriate AP or chairperson.

5) The Bureau of Supplies should send dated notices directly to an AP and to OCE bureaus whenever they learn of any change in the status of an order.

6) When vendors send a shipment that differs from what is on a purchase order, they should be required to include an explanation of the change.

7) The secretary in charge of purchasing should file copies of every packing slip, matching them with the purchase orders so that APs and chairpersons can check what orders are still outstanding.

8) Offices making payments should send a copy of every payment voucher to the appropriate OCE bureau head and the school secretary.

4. Supplies, Maintenance and Repairs

Most school personnel and some central personnel reported that the money available for supplies, maintenance and repairs is insufficient. Funds for these purposes go to each school as a part of its Other Than Personal Service (OTPS) allocation, which must cover all costs except salaries. This includes not only costs associated with vocational programs, but also administrative overhead and materials for academic classes. In addition, for the 1982-83 school year, the City Council allocated $1 million specifically for repairs and supplies.

A. Supplies

OTPS funds are allocated on a per capita basis to the schools where principals determine their distribution among programs. A school may convert a limited portion of Personal Service monies (around $6,000) to OTPS; in addition, a more substantial conversion is allowed for the costs of administrative data processing. Conversions above these limits must go through an elaborate negotiation process involving the borough superintendent, the Division of High Schools, and, if the amount puts the Division's total conversion figure over 5% of the total education budget, approval by the Board of Estimate/City Council. The City Council places a premium on devoting the maximum amount of money to teaching time, and therefore

conversions of instructional units to supplies and administration are frowned upon. This lengthy process often delays conversions to the end of the school year, when they cannot be used for the purpose intended. Principals object that OTPS funds are not administrative waste, but necessities for effective teaching. "Tell me how you can teach when you don't have enough paper," charges one principal.

Until the 1982-83 school year, a supplementary OTPS allotment had been on the books, targeting an additional per capita amount according to the needs of different occupational areas. But because OTPS monies have been scarce and victim to below the line cuts of up to 35% in any given year, money has not been available for this allotment. This means that a school receives much less in its basic OTPS allocation than its per capita rate would indicate. The assistant principals for cosmetology did a study and found they were in fact receiving 12¢ a student, and this is probably more than some other occupational education programs receive.

In addition to PS and OTPS units, the borough superintendents have a number of discrete units (approximately 30 per term) to distribute as they see fit for such areas as curriculum development, holding power programs, support services for resolving racial conflicts, and occupational education programs. Some of the superintendents have been buying the schools computers with this money.

Consumable supplies play an important role in both the electronics and medical assisting course. The OTPS allocation for a school of 2,500 students is approximately $18,000. Most principals complained this was totally inadequate to cover their costs. Principals are forced to divide up the limited dollars among all

the disciplines. In one school, the assistant principal was allotted $540 in OTPS funds for an entire year for an electronics program serving 400 students. This meant less than $1.40 per student. A second school with almost 1,800 students in its electronics program had only $4,000 for its labs, or less than $2.25 per student. EPP's research found a whole range of coping mechanisms, from student-sponsored fundraising events to raise money for their labs to teachers buying supplies out of their own pocket. APs whose schools participate in the After School Occupational Skills program reported that they face the additional burden of after-school use with only $100 per semester compensation, which does not cover the costs of supplies and wear and tear on the equipment.

An additional problem with ordering supplies is the $100 limit on purchases that can be made without filing a purchase order through the Central Board. Principals indicated that this prevents schools from ordering regularly needed supplies in bulk. One electronics AP reported that a standard order of solder, wire and fuses could easily run over $100. Believing that principals need more decision-making authority in purchases, the EPP recommends that this ceiling be increased to a more realistic level. Several APs and principals suggested that the ceiling be raised to $500.

Schools administrators and teachers feel that the shortage of funds for supplies has serious impact on the quality of the courses. In electronics, one of the most effective teaching techniques is to have students build components or equipment from prepared kits. Unlike the electronic trainers that are currently in use,

such kits give students contact with real components, heighten their interest in what they are learning, and allow advanced students to be creative. However, kits are considered supplies, and cannot be purchased with equipment funds. In many instances, students are asked to purchase their own kits, which range from $7-$40.

This is also true in cosmetology, where students' kits range in price from $25-$50. This does not include charges for uniforms or towels. School personnel report that they do notify parents and students of these extra costs prior to their entering the program. Even though most of the schools tell the parents to let them know if there is any difficulty meeting the costs, one principal suspects that some students either opt out as a result, or simply never apply. This same principal believes that the lack of money for necessary supplies is unfair discrimination against vocational courses; "academic courses don't require students to pay for text-books or lab supplies."

Although efforts are made to "scrounge around" for parts for those who cannot afford the kits, or to use the money from the fundraising efforts for the purchases, this creates a serious burden for the students and the teachers. In the medical assisting courses, too, a heavy emphasis is placed on consumable supplies. One AP estimated a class of 30 students in a lab techniques course would need about $750-$1,000 in supplies, or $25-$33 per student for one year. One way the Board has begun to deal with this is to require that any equipment purchased this year with tax levy funds also come with a year's worth of supplies.

There is one additional and important issue in OTPS funds and how they relate to VEA grants -- there are no VEA funds for supplies to accompany programs begun with VEA grants. An assistant principal who writes up to 20 proposals a year, and has developed numerous innovative occupational education programs with these monies, says that there are not only no rewards for this effort, but that the school is, in effect, penalized because it receives the same amount of OTPS funds as it did before the new programs were developed. The AP reports that a principal at a neighboring school says he would never go after grants, because it costs him too much money out of OTPS once the VEA funds run out. His school has no special programs, but he does not need to sell pretzels or scrounge for supplies the way his neighbor does.

Equipment and consumable supplies are purchased mainly by the offices at the central Board, either as a part of the VEA funding proposal or from the tax levy dollars. Problems arise because of some central inefficiencies. As described in the discussion of purchasing equipment (pp. 120-121), the Bureau of Supplies does not have a consistent procedure for reporting its decisions to the schools. All other problems with the ordering and delivery of equipment that were discussed apply as well to supplies.

B. Installation

Difficulties encountered in past years in coordinating installation and purchasing have been largely eliminated for tax levy purchases. Some problems still remain because contractors do not give top priority to Board of Education work, occasionally causing unanticipated delays.

In past years, equipment often was ordered without arrangements for installation or building modifications. This resulted in equipment sitting idle, because of inadequate electrical capacity, lack of plumbing or insufficient ventilation. Everyone interviewed agreed that these difficulties have been generally solved for tax levy purchases, since the Division of School Buildings reviews every site and every tax levy abstract before any equipment is ordered. In addition, the Bureau of Supplies is working with OCE and Mr. Cutler's office to increase the number of vendors who will install their equipment free of charge. School personnel reported that more vendors have been installing equipment, although some teachers said they have had to install small pieces and make security modifications on their own.

Staff at the Division of School Buildings said that the difficulties that remain are due to delays by the contractors. The contracts do include punitive measures against contractors for undue delays, but DSB said that the allowable fines are not heavy enough to induce the contractors to live up to their commitments. The Board has not used these punishments very often, but they are beginning to drop contractors with histories of delays from their list of eligible bidders.

C. Repairs and Maintenance.

Many of the schools we visited have serious problems finding funds to repair necessary equipment for occupational education programs. This was most pressing in the data processing area, where maintenance contracts on computers, especially the larger,

older ones, can run over $1,000 a month. In Business Education courses generally, repairs are a constant headache. Repair of IBM typewriters costs $93 for one hour, with a minimum of two hours required for each service visit. Schools often take chances by foregoing service contracts on items that they think might not break or may need only minor repairs before the end of school.

In the electronics field, teachers often perform minor repairs on equipment, such as replacing electrical plugs or repairing dials. Some schools have hired full-time, in-house mechanics, but they are usually not experts in every field. Most cannot repair the electronic equipment or the more advanced medical equipment. APs and principals universally said they have no resources for major repairs on equipment. In one instance, the AP was able to convince OCE to finance a service contract for $5,000 on a digital electronics machine. This cost alone would have wiped out the entire OTPS funds for the department. One school may have to shut down the entire video portion of its electronics progr m because its two cameras need $10,000 worth of repairs and there is no money available. In another school, where typing and secretarial skills are required as part of the medical assisting program, the school is forced to wait until three word processors are broken before calling in a repair service, since each service visit costs a minimum of $75. This strategy saves the school money on the service visits, but means that students are spending less time using the equipment. In the same school, half of the transcribers were broken, again reducing the training time available.

In electronics and medical assisting, schools have generally managed to keep most of their equipment in working condition, although often the students must share equipment because a portion of the stations is down. One reason for the contrast with data processing is the cooperation of the electronics vendors in repairing equipment or offering long-term guarantees.

The Bureau of Supplies, in conjunction with staff from the Special Assistant's office, is seeking longer warranties on all new equipment.

D. Recommendations for Purchasing Supplies, and for Maintenance, Repairs and Installation

- A formula should be developed that would allow tax levy equipment funds also to be used for purchasing consumables for vocational and occupational programs with a greater need, and these expenditures should be tracked.

- The formula should include adequate coverage for students participating in the After School Occupational Skills program.

- The Bureau of Supplies, in negotiating new bids, should continue its efforts to extend the length of warranties on new equipment.

- The Board of Education should attempt to set up special service agreements at the corporate level to accompany the purchase of machinery. Businesses should be asked to donate or discount maintenance on these purchases.

- The Board should make use of existing punitive measures against construction contractors who do not fulfill their contractual obligations, and should consistently implement their new policy of dropping contractors from the eligible lists if they have been delinquent in past work for the Board.

- The $100 per order ceiling on funds the principals can spend without a purchase order approval from the Bureau of Supplies should be increased. The EPP has suggested increasing this in the past, and urges the Board to do so with appropriate guidelines for the principals, which would target specific items or repair calls that are costly, and provide them with information on acceptable prices.

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CHAPTER VI

Occupational Education Programs for Special Populations: Access and Program Adaptation

The EPP believes that all children who wish to should receive occupational training that is appropriate and adequate to meet their needs. Preparation for productive employment is, if anything, even more important for people with handicapping conditions. These students need special attention or extra services to insure their equal educational opportunities. Similarly, students interested in entering fields dominated by the opposite sex need special attention in vocational education. And students with limited English proficiency may need special program adaptation to participate in the full range of occupational programs that should be available to them. While this report does not address this latter population,* the increase in the number of non-English-speaking students and the lack of formal efforts in this area indicate a critical need for further study.

Therefore we have addressed two basic questions: do vocational programs provide equal and ready access for special populations; and are programs adapted to students' special needs to the extent possible so these children can derive maximum benefit from vocational education? We looked at occupational programs for special education

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* While we saw a few separate classes for students with limited English proficiency (LEP), and the after-school TOLLEPS (Training for Occupations and Languages for Limited English Proficiency Students) Program serving 700 students, it was impossible to determine how many bilingual or LEP students were in mainstreamed vocational classes or how many more students should be served in the self-contained classes, but aren't.

students and for students in non-traditional fields.

We focused on access by special populations to programs in the two occupational areas we studied -- data processing and cosmetology. Both had fairly limited access especially for handicapped youngsters.

As in so many aspects of vocational education, our researchers found some exemplary programs. Even where classes were not preparing students for full licensing or competitive jobs, they were providing valuable learning experiences. These illustrate the potential benefits of providing occupational training to special populations and belie the protestations of some teachers and administrators who point only to the difficulties (real or imagined) of serving these children. Most of these personnel, who are, after all, not specially trained to work with special students, simply need to be made aware of these students' capabilities and of techniques for adapting their programs. But the commitment and the direction for this must come from various central offices working together to set clear goals and provide the needed support. At present, this is rarely the case.

What emerges is a picture of limited access to regular occupational education programs, more plentiful offerings for students in self-contained settings, some job placement and work experience assistance, an inadequate amount of technical assistance (especially for regular teachers to integrate special education students), and an insufficient amount of systemwide planning by the central Board.

1. Special Education Students

A. Access

The amount of money and resources that have gone into occupational

education programs for special populations, and special education in particular, is difficult to determine. Until the 1982-83 school year, special education funds were distributed by both the Division of Special Education and the Division of High Schools; actual spending and lines of accountability for programs were unclear.* In addition, it is nearly impossible to know how much of the money allocated to students who are mainstreamed actually pays for services for those students. Finally, principals and teachers don't know how many special education students are in a particular data processing or cosmetology class.

Special education funding comes from a number of sources, but, as a July 1981 EPP study noted (Special Education Funding: A Story of Broken Promises), the federal allocations have fallen far short of the intentions of PL 94-142, the Education for All Handicapped Children Act. The large urban centers have been particularly shortchanged, and inequities in the New York State funding formula exacerbate the situation. New York City has had to bear a disproportionate share of the costs of educating its 90,000 handicapped students, approximately 11,500 of whom are in high school. As a result, monies for occupational education programs for the handicapped are limited.

Special education students have access to occupational and career education in a number of settings. Separate training centers in each borough offer assessment, training and job placement for mentally retarded students. A Learning Center for the Neurologically Impaired gives over 100 students work-study opportunities. An industrial arts

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* (EPP, Charting New Directions, July 1981, p. 10)

program serving 8,000 students, begun in 1973 with VEA funds, is now supported by tax levy monies, and equips and staffs General Industrial Laboratories in regular high schools to serve handicapped students.*

But the emphasis of PL 94-142, the VEA Amendments, and policy statements by the Board, is on mainstreaming and providing students with occupational education opportunities in the regular school setting. In our earlier study, we found almost no handicapped students in shop and vocational courses. Help Wanted had attributed this limited access to overcrowding of vocational schools and shops, with priority for access given to non-handicapped students. Since that time, the new computerized admissions system now places special education students in a priority category, so that students who apply are automatically admitted to any unscreened program (those without entrance requirements.) However, one administrator from the Division of Special Education claims it is "harder for our kids to get into the vocational high schools (than academic high schools). Vocational educators see themselves as preparing craftsmen as

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* General Industries Laboratories is an occupational education program for handicapped students in regular schools. Aimed at early and continuous skill and employability training, the program operates at the elementary, intermediate, and secondary levels. Shops are taught by Industrial Arts teachers who receive training by Special Education supervisors and teachers. Students who show proficiency may then be mainstreamed into regular shops in their high schools. A specially designed shop for handicapped students at Adlai Stevenson High School was built with VEA funds in 1973, and the design is available for replication. As of the winter of 1981, there were 75 shops serving 6,500 handicapped students in the regular K-12 schools, and by June of 1982, 100 shops for 8,000. The program, now supported wholly by tax levy funds, is not expanding anymore because "qualified shop teachers are not available." (David S. Berlin, "General Industries Laboratories: An Occupationally-Oriented Shop Program for the Handicapped in New York City Schools" in Forum, Volume 7, No. 4, Part II, winter 1981).

opposed to concentrating on the development of kids." The facts do not bear out that contention. Our calculations show that, as of March 31, 1982, there were 1,592 special education students out of 31,953 enrolled in the vocational high schools, while there were 11,496 special education students out of 262,971 in all the high schools combined. In fact, the vocational schools have a slightly higher average enrollment of special education students than the high schools as a whole (4.98% versus 4.3%). (See Table 7.) Table 8 indicates the degree of mainstreaming in shop classes in the vocational schools.

However, one advocacy organization has recently conducted a study of special education students in vocational high schools and found that most received "watered down" courses with skill training far below the level they could potentially handle. Students at one high school have four shop periods a day, but it is in a building maintenance program where they learn to sweep and mop floors. These HC 30 students, who have learning difficulties from organic brain injury but are not mentally retarded, are not only receiving inferior vocational training, but most will not receive diplomas, because their schedule does not have enough time left for academic or remediation courses. Thus, these students leave school without a diploma and without saleable skills.

This situation reflects the confusion about the goals of vocational education programs that we noted very early in this report. The lack of clear goals becomes even more of a problem when dealing with special education students. Are vocational education programs specifically to provide job skills? If so, then

TABLE 7

Special Education Enrollments in Vocational High Schools
3/31/82

	Special Ed Register	Gross Register
MANHATTAN		
Art & Design	19	2,058
Chelsea	13	927
Fashion Industries	58	2,121
Mabel D. Bacon	14	1,263
Manhattan Voc.	120	1,005
N.Y. Printing	70	1,344
BRONX		
Alfred E. Smith	76	1,422
Grace Dodge	7	1,862
Jane Addams	20	1,431
Samuel Gompers	102	1,188
STATEN ISLAND		
Ralph McKee	62	1,143
BROOKLYN		
Alex. Hamilton	109	1,113
East New York	84	1,196
Wm. H. Maxwell	65	1,482
Automotive	33	1,365
Eli Whitney	258	1,972
Geo. Westinghouse	136	1,764
Wm. E. Grady	129	1,544
QUEENS		
Aviation	44	2,575
Queens	59	1,086
Thomas A. Edison	114	2,092
GRAND TOTALS IN VOCATIONAL SCHOOLS	1,592	31,953 = 4.9823%
IN ALL HIGH SCHOOLS	11,496	262,971 = 4.3715%

TABLE 8

Average Number of Mainstreamed Shop Periods per Pupil
10/31/81

Vocational Schools	Special Ed Register	Mainstreamed Pupil Periods Per Week: Shop	Average # of Mainstreamed Shop Periods Per Pupil
MANHATTAN			
Art & Design	21	190	9.05
Chelsea	8	80	10
Fashion Industries	62	195	3.15
Mabel D. Bacon	17	105	6.18
Manhattan Voc.	117	390	3.33
N.Y. Printing	76	495	6.51
BRONX			
Alfred E. Smith	80	900	11.25
Grace Dodge	8	-	0
Jane Addams	19	150	7.89
Samuel Gompers	129	1,850	14.34
STATEN ISLAND			
Ralph McKee	70	400	5.71
BROOKLYN			
Alex. Hamilton	139	1,470	10.57
East New York	108	240	2.22
Wm. H. Maxwell	62	15	.24
Automotive	31	-	0
Eli Whitney	263	720	2.74
Geo. Washington	148	3,885	26.25
Wm. E. Grady	121	525	4.34
QUEENS			
Aviation	34	-	0
Queens	59	905	15.34
Thomas A. Edison	125	975	7.8

Source: Comparative Analysis of the High School Organizations, fall 1981

probably some would not be appropriate for some special education students. Or are they also to provide general skill enhancement, pre-vocational training, work-readiness skills, and an incentive for students to stay in school? If these are among the goals of vocational education programs, and the EPP believes they should be, then access to them is especially appropriate for all special education students, whatever the extent or nature of their handicaps.

In the case of these students, there is a special opportunity to determine the most appropriate occupational training, and that is each student's Individual Education Program (IEP). If all IEPs had a vocational component, administrators could place children and plan programs appropriately. And, if the IEP were developed with input from those who understand the nature of the child's handicap and those familiar with the requirements of various occupations, it would be most useful.

As it is, there are a number of reasons for the limited access that exists, including:

1) Individual Education Programs (IEPs), required by law for all special education students, are often missing the component on career education and occupational training needs;

2) Those who might provide information and guidance to special education students often lack knowledge about handicapping conditions, needs, and potential;

3) Teachers and administrators who might be responsible for the recruitment of students into these programs lack similar knowledge;

4) Shop and academic teachers of non-handicapped students lack resources and readily available technical assistance on mechanisms for integrating special education students into occupational education programs; these mechanisms and aids could encourage teachers to recruit more special education students.

In general, the problem is not so much that students who want programs are denied them, as that there is a lack of effort to guide students to programs. This is coupled with a paucity of mechanisms to adapt regular programs to special needs, thereby limiting access because counselors and school staff perceive that the programs are not suitable for special education students. This circularity creates a system where opportunities for special education students to participate in occupational education programs, especially in the mainstream, are extremely limited.

The result of this is very limited numbers of handicapped students in data processing and cosmetology classes. In cosmetology programs, few students are mainstreamed: one each in two schools, and four in another. Two of those schools have cosmetology programs just for special education students, one of which tries to parallel the three-year offerings of the regular program. In a fourth school, all special education students are first placed in an industrial arts shop, and then if they show promise are moved into mainstream shops in the various vocational programs in this vocational school. A cosmetology program for special education students was started at Lafayette High School by a teacher with a background in both special education and cosmetology who had been transferred from Sarah Hale High School. The two-year program was soon in demand by non-handicapped students as well, and this year, the program is offering a regular three-year course of study for both special education and regular students. This example of reverse mainstreaming shows that quality occupational education programs can address the needs

of all populations, and serve the handicapped and non-handicapped at the same time.

Is this limited access justified by the demands of the cosmetology profession? Some teachers said that since this is a service profession requiring contact with the public, a certain level of social functioning and grooming were necessary. In addition, manual dexterity is important: some handicapped students may have problems with fine motor control, and thus would have a difficult time with some of the skills. Finally, the application for a license from New York State includes a physical examination to certify candidates as free from any physical or mental disability which might interfere with the performance of the job.* However, since some schools have been successful, we think it likely that there are more special education students who would be capable of participating in cosmetology programs, and believe that access has been more limited than the requirements of the profession dictate.

In data processing, there were no more than a handful of special education students in the 31 schools we studied. Numbers are hard to determine; principals and even teachers of the classes are often uncertain. At least 17 schools have no special students either mainstreamed in data processing classes or in separate programs. One program had three emotionally handicapped students mainstreamed, two of whom received diplomas last fall; the assistant principal

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* We called the State Licensing Division for more information on what these limitations might be, and who might be denied a license on these grounds. After a number of phone calls, we received no satisfactory answers, except to be told that that sentence was being removed from the license.

also recalled an emotionally handicapped student three years ago who won the school's data processing award. Another school has been "trying to get computers for the special education students forever," and runs a basic computer operations course for handicapped pupils. Two more schools each have one handicapped student in data processing, one of whom probably will not get a diploma because he won't meet the academic requirements. A fifth "occasionally" has physically or emotionally handicapped but no mentally retarded younsters in data processing classes. A sixth school has a separate computer room, and a seventh is developing a data processing elective to begin this fall; both of these are self-contained settings.

In short, access by special education students to data processing programs is also quite limited. Is this justified by the skills and aptitudes required by computers? Our research team asked special education personnel and coordinators, as well as regular teachers and administrators, this question. It seemed to us that the data entry and simple computer operations tasks might be learned by some mentally retarded students, and that handicapped students with normal intelligence but physical or emotional problems should be capable of computer tasks. The variety of answers they received illustrate the range of perceptions teachers and administrators without training in special education have about the capabilities of special education students and about the goals and purposes of vocational education in regard to these children. And special education teachers often misjudge the kinds of skills needed by particular occupations. Some school personnel are quite positive about the possibilities of

handicapped children learning computers. One teacher said she believed that computers take a particular kind of intelligence, not necessarily correlated with past academic successes or cognitive abilities. One Business Education assistant principal remarked that computers were wonderful for the handicapped, because they stimulate all the senses: "Computers are logical, sequential, tactile, visual -- a student can see what's going on." In contrast, a special education coordinator explained that computers need a strong task orientation and focus. The mentally retarded students, while task-oriented, he said, lack the cognitive ability; and emotionally handicapped students often have the academic ability, but generally lack focus.

Despite enormous changes over the past 10 years in attitudes toward the handicapped, some administrators evidenced unwitting biases and ignorance about the limits of handicapping conditions. Advances in teaching techniques and the expansion of early stimulation programs, which are producing higher level functioning, are erasing previous ideas about the limits and potential of the handicapped. But few high school occupational education personnel are aware of these gains.

Some programs in the high schools are more readily available than cosmetology or data processing to special education students. Small animal care, food service, industrial arts shops, and horticulture are among the kinds of programs in which handicapped students are encouraged to participate. In business education, there are special typing and clerical skills programs.

Access to programs varies according to the particular handicapping condition of the student. Students with hearing problems

seem to have the most access, while mentally retarded students have the least. Students in wheelchairs cannot attend several vocational schools which lack elevators. Malvin Cutler, now Senior Assistant for Business, says he is requiring physical access for the handicapped as part of any new shop or computer/word processing installations within schools.

Students with emotional and behavioral problems can be found occasionally in data processing and business courses, and less often in shops because teachers claim there are too many safety hazards, an answer that an advocate called "the same old story."

There are good ideas being tried out, and pilot programs which address the access issue in a small way. For example, an after-school program identifies students who could be appropriately mainstreamed in the regular after-school occupational education program (ASOSP) and in Shared Instruction arrangements. This past year, a shop teacher and special education teacher provided backup to the regular ASOSP program, mainstreaming as many of the approximately 700 special education students as possible. Tax levy monies paid for the additional instructional personnel ($51,000) plus $6,000 for supplies. An after-school cosmetology program run by Jane Addams High School serves handicapped junior high school students, and identifies those who might be interested and able to enter the cosmetology program at Addams in the 10th grade: this kind of early identification, exposure and recruitment is one way to increase access to special education students.

Our recommendations on increasing access are at the end of this section on Special Education.

B. Program Adaptation

If special education students are unable to participate fully in regular occupational education programs, what kinds of adaptations can be made to accommodate these students "in the least restrictive setting," as the law requires?

As we noted, some schools offer students programs in areas where they can perform with limited mental or physical abilities. Although Jane Addams High School has a few students mainstreamed in regular cosmetology programs, it also offers several separate programs. All these programs stress the development of saleable skills. "I realized that some would not be able to complete the three-year program," said the assistant principal in explaining the reason for establishing a separate program. In addition, she said, most will not graduate, and thus will not qualify for the licensing examination. A course in hand hair-weaving is planned for this fall. "A very lucrative income-producer," says the assistant principal. An after-school program for emotionally handicapped students teaches cosmetology skills which do not require a license. Eli Whitney's separate self-contained shop for cosmetology aims for a full three-year sequence. At William Maxwell, where one girl is mainstreamed, they are "very pleased with her success, so we're looking for more."

Most principals make some effort to create programs suitable for special education students. Edward R. Murrow, Christopher

Columbus, Martin Van Buren and Lafayette were among the schools which place high priority on the development of occupational education programs for their handicapped students.

How can programs be better adapted to special education students? One way, says the Division of Special Education in their Career Education for Special Students: A Policy Handbook (August, 1981), is through a modular approach to vocational skills training, so students can proceed at their own pace and in a mainstreamed setting. The handbook recommends that a program of occupational skills instruction "should be taught for at least 1 period/day (clerical) or 2 periods/ day (trade and technical, industrial arts, occupationally-oriented home economics). A second way is to encourage mainstreaming through reduced class size, an alternative some principals reject as too costly. Using paraprofessionals to give extra attention is another option, although one special education coordinator pointed out that some special education students might feel conspicuous and uncomfortable. Extra support services, now provided in the allocation formula, can help, but must be high quality and serve each individual's needs.

To mainstream more students in shops, and to provide them with increased access, a strong program of staff training and curriculum adaptation for teachers and administrators of non-handicapped students is needed. We reviewed the technical assistance available to implement and adapt occupational education programs for the handicapped. The two we have mentioned so far (Implementing Career Education for Handicapped Students: A Staff Development Instructional Guide, and Career Education for Special Students: A

Policy Handbook) are excellent sources of ideas and information published by the Division of Special Education in conjunction with other offices at the Board. However, these have been distributed primarily to an audience of special education teachers and administrators. The Guide was originally designed as a companion to the in-service courses offered by SETRC (Special Education Teachers Resource Center). While theoretically open to all teachers, the SETRCs (in each borough) provided training to approximately 200 teachers each year, most of whom were special education teachers. There does not seem to be any technical assistance, handbooks, or information readily available to teachers of the non-handicapped, who are expected to mainstream special education students successfully, but have no expertise. Teachers need to know the implications of various handicapping conditions so they can provide extra help in areas that are harder for these students, or adapt curricula and training to the disabilities. A basic understanding of developmental differences and an overview of special education teaching strategies are important. Methods for integrating students into shops, designing modular curricula, adapting lessons that might be too difficult or frustrating for a particular student, developing alternative ways to teach the same concept or skill, are all ideas for technical assistance that might benefit regular teachers.

The question is who should provide this help and how should it be done? The SETRCs, created in 1977 with VEA funds, have been closed this year, and their staff and functions assumed at the regional offices which coordinate special education. It is unclear what the effect of this transfer will be; now, however, technical

assistance will be offered as part of the other responsibilities of these offices, rather than as the sole focus. Whether this will help get more technical assistance into the programs and the schools or simply cut down on the amount of help available remains to be seen. If access to occupational education programs is to be increased and programs better adapted to meet the needs of the handicapped, technical assistance efforts must be fortified.

This year, control over the allocation of special education funds has been transferred from the Division of Special Education to the Division of High Schools. Intended to increase accountability for spending and programs, the new allocation formula places greater responsibility on individual principals for ensuring that special education students actually receive the services for which these funds are intended. Monitoring of programs will continue to rest with the Division of Special Education, whose staff will make school visits and evaluate programs, in addition to checking expenditures. The formula provides equitable funding for all students including some additional resources for special education students and thus replaces some separate funds for special programs. For example, the General Industrial Laboratories program, which sometimes "gave" teachers to schools as an incentive for principals to implement the program in their schools, has lost a number of teacher lines because these add-ons were not accounted for by the formula. Those schools which have kept the programs, despite a loss of categorical funds for them, have done so because of the commitment of individual principals and participating shop teachers. It is important that the Division

of Special Education and advocates continue to monitor programs to ensure that the funds provide services to the students who generate them.

Another major change for the 1982-83 school year is the assignment of Assistant Principals for Special Education to 21 schools with populations of over 160 special education students. An EPP study (Charting New Direction: A Budget Analysis of the Division of Special Education, July, 1981) noted the importance of a school-based coordinator to integrate special education classes with other education services in the school. We suggest that a function of the new AP be to coordinate the development of occupational education programs, and to seek out and provide the technical assistance needed by teachers of handicapped and non-handicapped students alike.

Vocational program planning for special education students has been centralized in OCE's Office of Planning and Development. Although the director of this office is trained in special education and committed to serving this population, this is only a fraction of her obligations in that office. There needs to be one person in OCOE who is an advocate for and responsible only for designing and adapting regular occupational education programs for handicapped students. According to OCE's 1982-83 Annual Plan, an unspecified amount of tax levy funds will be allocated to the Division of Special Education for vocational education and job training and placement, including exploration, training, work study, job development, placement, and training in employability skills. Another project, funded by VEA, plans similar training for 3,120 students.

There is verbal support for the development of occupational education programs serving the handicapped from the central Board. Mr. Cutler's office, responsible for the distribution of the tax levy vocational education equipment money, has told schools, "We'd look especially favorably on those proposals which have an impact on the handicapped, and on moving people into non-traditional roles." Distribution of funds will need to be monitored to be certain this commitment is backed up by dollars.

What about work experience programs for special education students? Central COOP has focused attention on locating work experience opportunities for special education students. A three-day conference held in May, 1981 involved industry, school COOP coordinators, and special education personnel. The tax credit that is available to any business that hires a handicapped person was advertised.

The Placement and Referral Center for Handicapped Students, run by the Central Board, provides "competitive employment in private industry for handicapped young people." The Center places approximately 300 graduates a year, and a work experience program helps 11th and 12th graders find part-time jobs. Six hundred students are placed in work-study arrangements during the school year, and 1,100 over the summer at 400 work sites. Placements come from TOP, YETP, the Summer Youth Employment Program (operated by the Mayor's Office for the Handicapped), and contacts developed over the years. Initially designed as a transition between school and work, the program's work-study component has received increasing

attention. Begun in 1971 with 30 students and Title I funds, the program is now supported by VEA.

Although a Board publication, Implementing Career Education for Handicapped Students (Division of Special Education, 1979-1980), states that the Board of Education has established positions for Job Developers for handicapped students, our researchers visited only one school, Theodore Roosevelt, where this job developer was in place. He had placed 27 students last year by the time we visited the school in the early spring. Students were placed in jobs at Fordham University, local nursing homes, and the Bronx Zoo.

Thus, there are some opportunities for handicapped students to gain work experience. Exactly how many students are served at the central and school level is a question for further study. The restructuring of the control of special education monies and programs makes it hard to anticipate accurately how programs will develop in the the future.

C. Recommendations for Access and Adaptation of Vocational Programs for Special Education Students

Despite the fact that the picture of vocational programming for handicapped students is in flux, certain areas of need are clear. The EPP makes the following recommendations:

- Federal regulations require Individual Education Programs for special education high school students to have a career component. This should indicate whether occupational training should have an explicit employment goal or provide general capacity enrichment, and whether a diploma is a possible goal for the student.

- Recruitment efforts to attract special education students must be increased. Special sessions should be held to give them and their parents orientation about occupational education programs which might serve their interests, needs, and abilities.

- Those who do the recruiting and assist students in making choices must be well-informed about the positive potential of various handicapping conditions, and about the programs in the schools which are currently adapted to students with special needs.

- There should be a system of exploratory occupational education programs for special education students prior to their entry into 10th grade. This would expose students to choices, assess aptitudes and interests, and identify likely candidates for mainstreaming into regular programs.

- Technical assistance must be provided to teachers of regular occupational education classes about how to adapt programs and integrate handicapped students into shops and classes.

- Technical assistance must reach the clasroom level. A network of technical assistance teams operating under the auspices of the regional office might be one choice.

- Programs should be evaluated to determine whether special education students are learning useful and marketable skills at as high a level as possible.

- The current review of programs and curricula under the OCE accreditation process should include an analysis of how to make each occupational area more available to special education students, and develop adapted curricula at the same time as the standardized curricula are being designed. This suggests the addition of a special education reviewer to all curriculum development efforts of the accreditation process.

- Those schools which have developed exemplary programs -- whether in the mainstream or in self-contained settings -- should share their expertise with other schools. One suggestion is a committee of school-based personnel to expand access and offerings in occupational education to special education students.

2. Sex Equity*

A. Access

Vocational training in the New York City high schools has traditionally been segregated by sex, either purposely or de facto. Some

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* Much of the information in this section was provided by The Full Access and Rights to Education Coalition (FARE), an independent consortium of advocacy and community organizations.

vocational high schools, such as Aviation, Automotive, and Samuel Gompers, were all male, while others, such as Mabel Dean Bacon and William Maxwell, were all female. Table 9 shows the student enrollment by sex in the vocational high schools through 1981-82, and Table 10 shows the changes in sex representation. In addition, many occupational programs within high schools were dominated by one sex or the other.

Federal Title IX 1975 regulations required that all educational facilities and offerings be open to both sexes. The Vocational Education Act Amendments of 1976 stressed sex equity in occupational education opportunities, and provided funds to promote the entrance of boys and girls into nontraditional occupational areas.

Despite written policies by the central Board encouraging sex equity and recruitment of girls and boys into nontraditional occupational areas, the Board's commitment to sex equity is extremely questionable. New York City's compliance with Title IX regulations has been under investigation by the State of New York (as a result of a charge by the United State Department of Justice), which sent teams to eleven single sex vocational high schools and investigated charges of sex bias, stereotyping, and discrimination. New York City's plan for 1982-83, required by VEA regulations, was returned by the state for failing to address sex equity needs adequately. Final state approval of OCE's 1982-83 funding was held up until the end of September 1982 for problems in two funding areas, one of which was sex equity.

A VEA sex equity project called STRIVE (Strategies to Reduce Inequities in Vocational Education) was funded for four years, one

Prepared by: The Full Access and Rights to Education Coalition

TABLE 9

Student Enrollment by Sex
for
New York City's Vocational/Technical High Schools*

BRONX

BRONX	Alfred E. Smith			Grace H. Dodge			Jane Addams			Samuel Gompers		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
1979-1980	2,086 (99.8%)	4 (0.2%)	2,090 (100%)	150 (7.4%)	1,866 (92.6%)	2,016 (100%)	5 (0.3%)	1,499 (99.7%)	1,504 (100%)	1,027 (98.7%)	14 (1.3%)	1,041 (100%)
1980-1981	2,285 (99.6%)	9 (0.4%)	2,294 (100%)	157 (8.0%)	1,803 (92.0%)	1,960 (100%)	16 (1.0%)	1,610 (99.0%)	1,626 (100%)	1,087 (96.5%)	40 (3.5%)	1,127 (100%)
1981-1982	1,800 (100%)	0 (0%)	1,800 (100%)	170 (8.6%)	1,801 (91.4%)	1,971 (100%)	31 (1.9%)	1,604 (98.1%)	1,635 (100%)	1,322 (94.7%)	74 (5.3%)	1,396 (100%)

BROOKLYN

BROOKLYN	Alexander Hamilton			Automotive			East New York			Eli Whitney		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
1979-1980	1,021 (90.2%)	111 (9.8%)	1,132 (100%)	1,636 (99.9%)	1 (0.1%)	1,637 (100%)	1,541 (97.5%)	40 (2.5%)	1,581 (100%)	906 (38.6%)	1,441 (61.4%)	2,347 (100%)
1980-1981	1,053 (90.4%)	112 (9.6%)	1,165 (100%)	1,626 (99.8%)	3 (0.2%)	1,629 (100%)	1,337 (96.7%)	46 (3.3%)	1,383 (100%)	802 (35.9%)	1,435 (64.1%)	2,237 (100%)
1981-1982	1,168 (89.9%)	131 (10.1%)	1,299 (100%)	1,579 (99.9%)	1 (0.1%)	1,580 (100%)	1,429 (96.7%)	49 (3.3%)	1,478 (100%)	838 (37.4%)	1,404 (62.6%)	2,242 (100%)

* Based on data from the Division of High Schools, New York City Board of Education.

These statistics refer to school-wide enrollments and do not indicate enrollments in the individual occupational programs or classes within schools.

OOKLYN (continued)

	George Westinghouse			William E. Grady			William H. Maxwell		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
979-1980	2,026 (93.9%)	131 (6.1%)	2,157 (100%)	1,978 (98.7%)	27 (1.3%)	2,005 (100%)	11 (0.6%)	1,702 (99.4%)	1,713 (100%)
980-1981	1,959 (93.7%)	132 (6.3%)	2,091 (100%)	1,803 (98.0%)	37 (2.0%)	1,840 (100%)	20 (1.2%)	1,691 (98.8%)	1,711 (100%)
981-1982	1,821 (94.7%)	101 (5.3%)	1,922 (100%)	1,738 (98.1%)	34 (1 9%)	1,772 (100%)	49 (2.9%)	1,649 (97.1%)	1,698 (100%)

MANHATTAN

	Art and Design		
	Male	Female	Total
	1,327 (59.0%)	923 (41.0%)	2,250 (100%)
	1,462 (61.0%)	933 (39.0%)	2,395 (100%)
	1,380 (61.2%)	874 (38.8%)	2,254 (100%)

MANHATTAN (continued)

	Chelsea			Fashion Industries			Mabel Dean Bacon		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1979-1980	1,190 (100%)	0 (0%)	1,190 (100%)	177 (7.4%)	2,220 (92.6%)	2,397 (100%)	0 (0%)	1,277 (100%)	1,277 (100%)
1980-1981	1,028 (100%)	0 (0%)	1,028 (100%)	171 (7.3%)	2,156 (92.7%)	2,327 (100%)	0 (0%)	1,370 (100%)	1,370 (100%)
1981-1982	1,062 (99.5%)	5 (0.5%)	1,067 (100%)	228 (9.6%)	2,149 (90.4%)	2,377 (100%)	2 (0.1%)	1,352 (99.9%)	1,354 (100%)

	Manhattan Voc./Tech.		
	Male	Female	Total
	1,421 (97.4%)	38 (2.6%)	1,459 (100%)
	1,237 (97.6%)	30 (2.4%)	1,267 (100%)
	1,240 (97.6%)	31 (2.4%)	1,271 (100%)

	NY School of Printing		
	Male	Female	Total
1979-1980	1,361 (74.9%)	455 (25.1%)	1,816 (100%)
1980-1981	1,146 (68.2%)	534 (31.8%)	1,680 (100%)
1981-1982	1,093 (66.4%)	552 (33.6%)	1,645 (100%)

QUEENS

EENS

	Aviation			Queens Vocational			Thomas Edison			STATEN ISLAND		
										Ralph McKee		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
979-1980	2,764 (99.1%)	26 (0.9%)	2,790 (100%)	640 (48.9%)	669 (51.1%)	1,309 (100%)	2,432 (98.3%)	41 (1.7%)	2,473 (100%)	1,119 (82.5%)	237 (17.5%)	1,356 (100%)
980-1981	2,706 (98.8%)	32 (1.2%)	2,738 (100%)	682 (51.5%)	643 (48.5%)	1,325 (100%)	2,371 (97.6%)	59 (2.4%)	2,430 (100%)	1,089 (82.5%)	231 (17.5%)	1,320 (100%)
981-1982	2,667 (98.3%)	46 (1.7%)	2,713 (100%)	629 (51.5%)	592 (48.5%)	1,221 (100%)	2,278 (97.4%)	60 (2.6%)	2,338 (100%)	1,035 (84.1%)	195 (15.9%)	1,230 (100%)

TOTAL ENROLLMENT

1979-1980		
Male	Female	Total
24,[illegible]9 (66.[illegible]%)	12,722 (33.9%)	37,540 (100%)

1980-1981		
Male	Female	Total
24,037 (65.1%)	12,906 (34.9%)	36,943 (100%)

1981-1982		
Male	Female	Total
23,559 (65.0%)	12,704 (35.0%)	36,263 (100%)

Source: Table prepared by FARE.

TABLE 10

Change in # and % of Underrepresented Sex in Student Enrollment
for
New York City's Vocational/Technical High Schools

	From 1979-1980 to 1980-1981	From 1980-1981 to 1981-1982
BRONX		
Alfred E. Smith	5 (F)* (0.2%)	-9 (F) (-0.4%)
Grace H. Dodge	7 (M)* (0.6%)	13 (M) (0.6%)
Jane Addams	11 (M) (0.7%)	15 (M) (0.9%)
Samuel Gompers	26 (F) (2.2%)	34 (F) (1.8%)
BROOKLYN		
Alexander Hamilton	1 (F) (-0.2%)	19 (F) (0.5%)
Automotive	2 (F) (0.1%)	-2 (F) (-0.1%)
East New York	6 (F) (0.8%)	3 (F) (0.0%)
Eli Whitney	-104 (M) (-2.7%)	36 (M) (1.5%)
George Westinghouse	1 (F) (0.2%)	-31 (F) (-1.0%)
William E. Grady	10 (F) (0.7%)	-3 (F) (-0.1%)
William H. Maxwell	9 (M) (0.6%)	29 (M) (1.7%)
MANHATTAN		
Art and Design	10 (F) (-2.0%)	-59 (F) (-0.2%)
Chelsea	0 (F) (0.0%)	5 (F) (0.5%)
Fashion Industries	-6 (M) (-0.1%)	57 (M) (2.3%)
Mabel Dean Bacon	0 (M) (0.0%)	2 (M) (0.1%)
Manhattan Vocational/Technical	-8 (F) (-0.2%)	1 (F) (0.0%)
New York School of Printing	79 (F) (6.7%)	18 (F) (1.8%)

* (F) = Females are underrepresented sex
(M) = Males are underrepresented sex

	From 1979-1980 to 1980-1981	From 1980-1981 to 1981-1982
QUEENS		
Aviation	6 (F) (0.3%)	14 (F) (0.5%)
Queens Vocational	42 (M) (2.6%)	-51 (F) (0.0%)
Thomas Edison	18 (F) (0.7%)	1 (F) (0.2%)
STATEN ISLAND		
Ralph McKee	-6 (F) (0.0%)	-36 (F) (-1.6%)
TOTAL ENROLLMENTS	184 (F) (1.0%)	-202 (F) (0.1%)

Source: Table prepared by FARE.

more than the usual maximum, by the state. In 1981-82, the city received permission from the state to use $67,000 from another VEA project to pay for a full time sex equity coordinator, although not all that money was going to the coordinator or her services. When VEA funds were cut, the city eliminated the coordinator's position and did not restore it even when most of the cuts were later restored. Her duties were assigned to the Equal Opportunity Coordinator in the Office of Career and Occupational Education, who is charged with numerous other responsibilities. For sex equity, he is supposed to manage staff development, parent involvement, outreach and recruitment, increasing opportunities in non-traditional careers, and work with counselors and school staff although he has no enforcement power. The lofty goals listed in the 1982-83 annual plan and the ambitious efforts to increase sex equity projected for this coming year cannot possibly be accomplished by a coordinator devoting only part time to the issue with no experience and limited resources.

The Advisory Commission for Sex Equity has recommended that all Board plans and proposals be reviewed to ensure that sex equity components are included. This year, after Commission review, the proposals were revised, although not fully to the satisfaction of the state or the Commission. Although the state eventually acceded to the city's position, it is clear that careful monitoring of plans and proposals is warranted.

For sex equity, the VEA mandates that the state must spend not less than $50,000 a year for full-time personnel to furnish "equal education opportunities in vocational education programs to persons of both sexes; and [eliminate] sex discrimination and sex stereotyping

from all vocational education programs." Beyond this requirement, VEA funds may be allocated by the state to specific sex equity projects at the local level, but this is a permissive, not mandatory, provision.

In FY 1982, state expenditures for sex bias grants exceeded their plans ($500,000) by more than $300,000, but the state allocated no money whatsoever to providing support services for girls and women to enter and remain in occupational education programs, needs we identify as critical to increasing sex equity in these programs.

The two areas we studied, cosmetology and data processing, present different aspects of the sex equity question. Enrollment figures are presented in Table 11. Of 1,790 students in cosmetology, only 28 are male. Two programs have 100% female enrollment. Although few boys are enrolled in cosmetology programs, men are well represented in the beauty field itself. They are, more often than women, the owners and managers of salons, executives in cosmetics firms, and vendors of supplies and equipment.

The enrollment figures in data processing are less complete. We use OCE's figures here,* which include only those programs in the business education department (see Table 12). Of the schools

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* Source: A Survey of Occupational Education ("Borough Mini Plans"). Unlike regular vocational courses where a certain number of students are enrolled in the program and then follow through a sequence, the elective nature of data processing courses makes it difficult to get a head count by program rather than course. The Division of High School's figures are by course, and it is impossible to determine how many students are taking more than one data processing course in a school. Our numbers from the schools appear to match OCE's more closely, but several of the schools we visited with legitimate business education data processing departments are not included in the OCE listings.

we visited, 3,551 students were enrolled in data processing, of whom 1,784 were boys and 1,767 girls, an almost 50/50 split. There are no data indicating the distribution by gender among the various data processing specializations; e.g., are the girls concentrated mainly in keypunch and word processing courses, and the boys in the computer science courses? Total business education enrollments in all high schools are 86,310, of whom 22,337 are boys and 63,973, or 75%, are girls.

In our earlier study, we uncovered practices where principals of all-boys schools discouraged girls from applying or attending, citing their safety and isolation. In our current research, our staff did not come across any overt attempts to keep one sex or the other from attending a school once admitted, but, as with special education students, they found insufficient efforts to recruit and enroll girls and boys into nontraditional occupational areas and formerly single sex schools.

The computerized admissions system does place these students in a priority category for unscreened programs, thereby guaranteeing that a girl who applies to one of the previously all-male schools or programs, if it is unscreened, will have a seat. However, this provision does not apply to the more desirable, screened programs. Further, as the Advisory Commission for Sex Equity stated, "it is not enough for schools to quietly declare themselves 'open to boys and girls.' Students need extra encouragement and extra incentives to bring them into nontraditional programs."*

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* (Memo to the Advisory Council on Occupational Education, Enrollments of Students in Nontraditional Vocational Education Programs., February 1982, p.1).

TABLE 11

Breakdown of Enrollments in Cosmetology Programs by Sex,
as listed in OCE Borough Surveys of Occupational Education
May, 1982

School	Total	M	F
MANHATTAN			
Mabel D. Bacon	228	0	228
BRONX			
Grace Dodge	132	9	123
Jane Addams	155	1	154
BROOKLYN			
Eli Whitney	133	1	132
Sarah Hale*	704	10	694
Maxwell	196	3	193
QUEENS			
Queens Voc.	131	4	127
STATEN ISLAND			
Ralph McKee	112	0	112

* Acadamic/Comprehensive Educational Options course.

TABLE 12

Total Enrollments and Gender in Data Processing Programs
in Schools Visited
May 1982

School	Total	M	F
BRONX			
C. Columbus	148	80	68
Harry S. Truman	156	81	75
Herbert Lehman*	107	38	69
Samuel Gompers	93	85	8
Theodore Roosevelt	64	25	39
BROOKLYN			
Boys & Girls	90	33	57
Canarsie	177	107	70
F.D. Roosevelt	137	82	55
George Washington	119	80	39
Murry Bergtraum	654	298	356
Norman Thomas	243	81	162
Seward Park*	96	51	45
James Madison	191	112	79
Lafayette	58	32	26
Samuel Tilden	200	97	103
Sheepshead Bay	81	49	32
QUEENS			
August Martin	198	112	86
Hillcrest	32	12	20
Jamaica	323	166	157
Martin Van Buren	111	65	46
STATEN ISLAND			
Curtis	46	17	29
Susan E. Wagner	60	26	34
Tottenville	55	23	32
TOTALS	3,551	1,784	1,767

Source: OCE, Planning and Development Unit, A Survey of Occupational Education (Five volumes: Bronx, Brooklyn, Queens, Manhattan, Staten Island) May, 1982.

* Business Education only

Active recruiting to interest boys and girls in nontraditional occupational programs is one way to increase access. Although several schools our researchers visited recruit students from junior high schools, two schools in particular have recently begun to focus on sex equity concerns. Samuel Gompers High School allocates one period per week for each of two teachers who organize teams of students to make presentations and visit junior highs, career fairs, and community-based agencies. This "traveling road show" generates a great deal of excitement and interest, and uses girls and boys enrolled in nontraditional career areas at Gompers to tell potential applicants about the school and its programs. Sarah Hale's cosmetology program, trying to attract boys, uses a similar approach, and one boy making presentations helped to increase to 10 the number of males in this nearly 100% female program area.

"Peer recruiting works beautifully," says Tracy Huling, chairperson of FARE. The increase in the number of applications from girls to attend Gompers is directly attributable to this process. Located in the South Bronx, Gompers has been an all-male vocational school and was nearly closed in 1979 because of violence, poor attendance, and underutilization. Girls and their parents were told by the former principal not to apply because of lack of safety. With the peer recruiting process, the number of applications from girls has risen more sharply than any of the other single sex schools. For the 1982-83 school year, 250 applications out of a total of 1,250 came from girls. Enrollments of young women went from 1.3% in 1979-80 to 5.3% (74) in 1981-82. Although all 250 who applied for 82-83 are not expected to attend, the trend is

clearly upward, and recruitment efforts are obviously paying off.

These recruitment efforts were supported by tax levy funds, at least in part, and thus depended on a principal who was committed to sex equity and/or building up the number of applications to the school. Those who were truly concerned about sex equity assigned recruitment duties to staff with greater commitment and knowledge, as in the case at Samuel Gompers. At both Gompers and Hale, the recruiters (teachers and administrators), put in a great deal of their own time to build up the programs and attract students into nontraditional areas.

Earlier exposure to nontraditional occupations seems a necessary part of the effort to increase access. It is difficult to change the preconceptions of 14 and 15 year old girls and boys. School personnel, including the energetic recruiters from Gompers, say that more attention and resources need to go into exposure and consciousness raising at the elementary and junior high school levels. Junior high guidance counselors need to be educated about sex equity issues, and students need to be exposed at earlier ages to nontraditional career options. Recruitment campaigns must be initiated both by high school recruiters and by junior high staff to encourage students to consider nontraditional choices. VEA funds are available for this specific purpose, for

> training to acquaint guidance counselors, administrators, and teachers with ways of effectively overcoming sex bias and sex sterotyping, especially in assisting persons in selecting careers according to their interests and occupational needs rather than according to stereotypes. (Title 45, Chapter 1, Office of Education, Part 104-State Vocational Education Programs, 104.793, p. 136 VEA Amendments).

To our knowledge, the schools have not sought these monies, nor has the central Board advertised this as an allowable VEA expenditure. In similar fashion, although VEA allows grants for support services, including counseling and recruitment, no grants have been sought by the city. The state is also to blame here, since they have allocated none of their federal monies to support services for high school age women.

We conclude that access to nontraditional occupational programs is still limited. Where access has been increased, it has been due to active recruitment efforts initiated by individual schools and school-based staff. Although the Board has begun to include sex equity objectives into plans and proposals, these have not been backed up by allocations of monies or personnel.

We will now examine adaptation of programs to attract and retain students who enter nontraditional areas and problems the schools face in implementing sex equity objectives.

B. Program Adaptation

Enrollment of girls or boys into career areas previously dominated by one sex or the other is only half the battle. Extra resources and creative approaches are needed to ease the transition for the students and the staff, and, where necessary, to adapt the programs and physical plant.

For the students, support services are essential. Students in this situation are forging new ground, and report feeling isolated, confused, and scared. Some leave, and return to their zoned schools. Mechanisms such as regularly scheduled support group meetings, easy

access to counseling and discussion, and placement with others of the same sex in academic courses make a big difference. Ideas for support services suggested by the Advisory Commission for Sex Equity are included in the Appendix.

Making programs and curricula more attractive to the under-represented gender is another strategy to retain students in programs. But care must be taken not to develop divisions within programs, where, for example, girls do the data entry tasks while programming and computer operations are reserved for boys.

Some teachers and administrators are aware of sex equity issues in programs and curricula. There are attempts in the predominantly female cosmetology programs to teach girls entrepreneurial and managerial skills. Principals and supervisors commended teachers who stressed these skills. The Sarah Hale assistant principal developed a unisex beauty shop proposal to attract boys into the program and is working at the state level to get a combined barbering-cosmetology license. Administrators reported that computers draw boys into business education and formerly female-dominated secretarial studies; since computers demand keyboard skills, stereotypes about typing being just for girls are breaking down. Several principals told our researchers they are beginning to require typing for all entering students.

On the other hand, other typical responses were "girls don't want to get their hands dirty," and that all students, not just girls, are seeking white collar professions. At one school, a vocational school offering five shop areas in addition to cosmetology, the 9th grade exploratory program has the boys rotating through the shops

(auto, electricity, etc.) but not the girls in cosmetology. The principal explained that the practice emanated from pressure from the girls, who said they would take cosmetology as part of Shared Instruction at other schools if they were made to rotate through the shops. Our researchers also noted examples of sex role stereotyping in their observation of some job placement efforts. In the COOP program, any heavy work or messenger/courier job is automatically given the boys, whose files are flagged with a blue sticker. At the orientation session for prospective COOP students, girls were told that "when you go for your jobs as typists you have to look pretty," and boys were advised that "if you're working as stock clerks you want to look strong but clean." However, some work experience programs place special emphasis on sex equity and appear to avoid this stereotyping. Programs and schools must be especially conscious to avoid stereotyping, and consultation and in-service training may be necessary to educate staff about unwitting biases and methods to rid their classes of stereotypes, prejudice, and discrimination.

The appropriateness of the physical plant was a concern expressed by two principals of formerly single sex schools. Administrators complained that schools lacked separate bathrooms and lockers, and had inadequate athletic facilities. Principals report they are under pressure from students who were unaware they would be in the minority or who had received inaccurate information about the availability of sports and other activities.

Special provisions are necessary for student parents and pregnant girls. Child care services are provided by the Board of Education at 20 sites, including 13 high schools, and serve 680 children. However, only eight of these take children of students; the remainder are for community children, and serve as training laboratories for career courses in child development, parenting, homemaking, consumer education, child care, and nursing/health.*

A lack of affordable child care is the reason many young mothers (and fathers) drop out. This is as much a holding power issue as a sex equity question. VEA money can be used "to provide day care services for children of students (both male and female and including single parents) in secondary and postsecondary vocational education programs."** However, of the five programs begun with VEA funding, only one takes children of student parents. At least one school we visited has assigned one of its five guidance counselors as a specialist to advise pregnant girls about their options. If the

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* Of those which serve student parents, four are funded by the Human Resources Administration ($287,770 for the "Win-Teen Mother Day Care Program" -- 10/1/81-9/30/82, a collaborative effort with the Board of Education "who agreed to provide remedial education, job skills, active job counseling and placement efforts.") Two are funded by tax levy funds through the City Council President's office, ($260,000 for "Life/Infant Care Pilot Project" -- 9/81-6/82), as pilot projects to test the effectiveness of school-based infant toddler centers "as a support service to student parents." One is located in the Brooklyn Outreach and Learning Center where the teenage parents are enrolled. It is funded by VEA (ibid.) The eighth program is located in an alternative school, High School Redirection, and is funded through an additional tax levy unit allocation to the school.

** VEA reauthorization, 1976, 104.611, p. 130.

student decides to have the baby, the school tries "to be flexible and fit her classes to her baby's schedule," says the assistant principal for guidance.

C. Recommendations for Sex Equity in Vocational Education Programs

To retain girls and boys enrolled in nontraditional areas, schools and the Board must provide additional supports for students, make certain programs and curricula are free of sex stereotypes and biases, and educate and raise awareness among teachers and administrators about sex equity issues. The Board should ensure that the physical plant is suitable, and aid the schools in making necessary renovations. While students should receive correct information about programs and offerings, there is a fine line between preparing a student that he or she will be in a minority, and using that information to discourage enrollment.

The Advisory Commission for Sex Equity has suggested strategies to fortify recruitment efforts. They have recommended that admissions policies to vocational schools and occupational programs be examined for sex biases, developed a model program of support services to retain students enrolled in nontraditional career areas, and pressed for the establishment of a system to review the Board's plans and proposals for adequate attention to sex equity concerns.* Their recommendations have been endorsed by the Advisory Council on Occupational Education and submitted to the Chancellor, whose Advisory Commission to Promote Equal Opportunity endorsed these

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* See Appendix F.

concepts on May 18, 1982, and urged that funds be appropriated for these purposes.

The EPP makes the following recommendations, drawing on ideas suggested by the Advisory Commission for Sex Equity as well as from our own research in the schools:

- Recruitment efforts at both the junior and senior high school level must consciously and aggressively advertise nontraditional career choices to students. Strategies include nontraditional career fairs, wide distribution of bias-free recruitment materials, and having students enrolled in nontraditional programs make presentations to potential applicants.

- As part of the ongoing review, admissions tests and interviews for screened programs should be examined for and rid of any sex bias.

- Exploratory sequences should emphasize rotating students into nontraditional career areas. The curricula for these sequences should examine stereotypes and biases students have already developed, and draw on examples of individuals who have been successful in nontraditional careers.

- A program of support services for students enrolled in nontraditional occupational education programs should be developed. The program should include counseling, peer support, and child care for student parents. The Advisory Commission on Sex Equity should work with the Office of Occupational and Career Education and the Division of High Schools to design and implement this program.

- A full-time sex equity coordinator should be appointed, to carry out the objectives promised by the OCE Annual Plan.

- This year's process for evaluating all occupational education plans and proposals for sex equity compliance should be continued.

GLOSSARY OF ABBREVIATIONS

AP	Assistant Principal
ASOSP	After School Occupational Skills Program
BLS	U.S. Bureau of Labor Statistics
BOS	Bureau of Supplies
BRAVO	Bronx Resources for Academic and Vocational Opportunities
CAP	Cooperative Apprenticeship Program
CETA	Comprehensive Employment Training Act
COOP	Cooperative Education
CUNY	City University of New York
DHS	Division of High Schools
DSB	Division of School Buildings
EDC	Economic Development Council
EPIC	Education Through Private Industry Cooperation
FARE	Full Access and Rights to Education Coalition
IEP	Individual Education Program
LEP	Limited English Proficiency
OCE	Office of Career Education
OTPS	Other than Personal Services
PAE	Partners for the Advancement of Electronics
PIC	Private Industry Council
PS	Personal Services
SETRC	Special Education Teachers' Resource Center
TOLLEPS	Training for Occupations and Languages for Limited English Proficiency Students
TOP	Training Opportunities Program
VEA	Vocational Education Act
VICA	Vocational and Industrial Clubs of America
YETP	Youth Employment Training Program

APPENDIX A

Method of Study

EPP's research team visited all eight schools which offer Cosmetology, and 31 schools which offer data processing. We spoke on the phone with 11 others. (The High School Directory listed 38 schools under this career concentration.) It was difficult to determine just how many schools offered data processing; these programs are being added constantly and every time we thought we had contacted them all, we learned of yet another program. A major charge of the study was to compare what was listed in the High School Directory (the main source of information for students and their parents to select high schools and special programs) with what actually existed in the schools. A criterion for determining what constituted an occupational education program was the definition used by the Office of Career Education: a program offering a two-year, 10 period a week concentration in an occupational area. We did not look at computer literacy programs since these were usually one-semester or one-year courses offered only five periods a week. We first called the Office of Career Education to get their advice on which schools did or did not offer actual occupational education programs. We tried to visit all those schools said to be offering substantial programs; in one case, access was difficult, and time did not permit us to visit two other schools identified towards the end of our field work.

At the schools, two researchers interviewed administrators, teachers, support staff, and students, including:

36 Principals
13 Assistant Principals, Administration
7 Assistant Principals, Cosmetology
22 Assistant Principals, Business education (and accounting)
4 Assistant Principals, Secretarial Studies
2 Coordinators, Data Processing
5 Assistant Principals, Guidance
4 Assistant Principals, Math
4 Assistant Principals, Science
1 Assistant Principal, Career Education
2 Cooperative Education Coordinators
9 Teachers of Cosmetology
9 Teachers of Data Processing, Computers
2 Coordinators, Special Education
1 Teacher, Word Processing
1 Coordinator, VEA Grants
1 Coordinator, Shared Instruction

We also spoke with central Board of Education personnel at the Office of Career Education, the Bureau of Business Education, the Bureau of Trade and Technical Education, the Division of High Schools, the Chancellor's office, Office of Pupil Personnel Services, the Cooperative Education office, Youth Leadership program, TOLLEPS, Division of Special Education, Office of Computer and Science Information Unit, and the Office of Data Processing.

We then surveyed industry, and spoke with 65 private sector firms. Of these 31 were data processing companies, 19 were banks, 14 were insurance companies, and one was a personnel agency specializing in placements in data processing and computers. We interviewed the president of the Private Industry Council, staff of the Educational Development Council, and an executive of a major computer corporation.

Interviews were also conducted with the director of the New York State Employment Service Counselors, two leading black cosmetologists, and representatives of public advocacy organizations.

Finally, and most important, we talked to students. Eighty-five students were interviewed at the schools, in industry placements, at a career fair, and at a gathering of the Vocational and Industrial Clubs of America.

The study focused on the collection of "qualitative" data rather than numbers. We wanted to know what students' expectations and experiences were like, and how satisfied they were with the training they were receiving. We asked administrators how various policies and processes did or did not work for them, and what major problems they had in implementing occupational education programs. We looked at how individual principals and schools designed and implemented these programs differently, and what contributed to these differing decisions.

APPENDIX B

PROPOSED EXPENDITURE PLAN
FOR OCCUPATIONAL/CAREER EDUCATION, 1982-83 (As of May 1982)

GOALS for Occupational/Career
Education for New York City

MISSION STATEMENT: Plan, develop, support and deliver occupational and career education services to a citywide population, K through Adult, including populations with special needs.

*GOAL I: High Schools: Upgrading and Expansion. In collaboration with the Division of High Schools, Division of Special Education, and Office of Bilingual Education, upgrade and expand occupational/career education, updating facilities, equipment, curricula, and staff--to extend to underserved and unserved populations occupational and related basic skills training, employability skills, and career development that will prepare them for employment or advanced training in current and emerging technologies.

*GOAL II: Elementary/Intermediate/Junior High Schools: Development and Expansion of Services. In collaboration with Community School Districts, increase the number of students, staff and school participating in pre-vocational training, career development, and career education programs, through the upgrading or replication of regular or pilot programs, and based upon a citywide plan for career education.

GOAL III: Direct Operation of Programs. Provide the city's in-school youth, out-of school youth and adults with occupational and basic skills instruction, consumer and homemaking education, training and work experiences, and related intake/assessment/referral/placement supports, through a network of management and client services responding to individual client needs and to community needs.

GOAL IV: Occupational Clusters. Provide leadership in the development of training opportunities in the six major occupational cluster areas of Agriculture, Business/Marketing, Health, Home Economics, Pre-Vocational/Pre-Technical, and Trade/Technical Education; training and related instructional supports will emphasize skills required to meet current labor needs in emerging technologies, and coordinating services within the discipline on all training levels.

- o Develop standards for accrediting training programs in a selected number of areas within each cluster.

GOAL V: Preparation for Training and Employment: Related Instruction and Counseling Support occupational instruction, K through Adult, with a wide range of services to prepare prospective and enrolled students for training and employment; services will include employability skills, career education, career development/counseling (in schools, on an outreach basis, and in service magnets such as the Bronx Resource Center and two Centers to be replicated in Brooklyn Brooklyn and Queens respectively), and youth club activities.

*Activities of special interest to the Chancellor

GOAL VI: Special Populations. Provide special populations with unique supports to assure them of equal access to and opportunity for success in occupational training programs. Special services and supports will be directed towards populations which include the limited English proficient, the elderly, the talented and gifted, displaced homemakers, persons with handicapping conditions, and will also insure bias-free opportunity for men and women to broaden their career knowledges and aspirations.

*GOAL VII: Computerized Instruction, Career Development, and Occupational Training Data Base. Develop systems and implement projects which apply computer technology to the improvement of occupational and basic skills instruction, career development information, and data on existing training resources to a citywide user population of in-school students, out-of-school youth and adults, and to field and central administrators.

GOAL VIII: Curriculum and Staff Development. Upgrade and update instructional materials to reflect current and anticipated needs and standards of business/industry and to respond to the program accreditation process; emphasis will be placed on developing materials which are modular in format, competency-based and keyed where possible to specific job titles.

With the input of business/industry, train field and central staff in the development and use of new or modified curricula, and in efficient supervision and administration of programs.

GOAL IX: Facilities Development and Expansion--Multi Level. Develop plans and implement schedules to acquire new sites, modernize or upgrade existing facilities, and equip new facilities, based upon industry standards and requirements. Develop, where appropriate, industry training sites to augment school training capabilities.

*GOAL X: Response to Local Labor Market and Economic Development Needs. Strengthen processes for the input of business/industry personnel, resources, and data into the planning and implementation of programs, through vehicles such as Advisory Commissions, task forces, and other cadres of advisors.

- o Strengthen processes for responding to economic development needs by tapping, modifying, or mounting training programs for current or prospective local employers.

* = Priorities of special interest to the Chancellor.

APPENDIX C

CURRICULUM STRUCTURES

Term by Term Program for Students Who Wish to Complete a Business Education Concentration.*

1 year of Language
2 years of Science
3 years of Mathematics

Assume Curriculum Index of 7

Subject	TERM 1	2	3	4	5	6	7	8	Total
English	x	x	x	x	x	x	x	x	8
Social Studies	x	x	x	x	x	x	x		7
Science	x	x	x	x					4
Math	x	x	x	x	x	x			6
Language	x	x							2
Art								x	1
Music					x				1
Business Education Concentration	x	x	x	x	x	x	x	x	14
Physical & Health Education	x	x	x	x	x	x	x	x	8
Electives							x	x	3
Electives								x	2
TOTAL	7	7	7	7	7	7	7	7	

*Business Education Concentration may be pursued in any of the 3 disciplines
Accounting/Recordkeeping/Data Processing
Marketing and Distributive Education
Secretarial Studies

Curriculum Pattern 1

11th Grade

Core Curriculum

9th Grade	10th Grade
World of Work (1/2)	Keyboarding/Business Communications
Exploratory Business (1/2)	Keyboarding (1/2)
	Computer Literacy (1/2)

Specialization Curriculum

	11th Grade	12th Grade
Accounting/Bookkeeping	Integrated Bookkeeping (1) Business Math (1)	Integrated Bookkeeping (1) Data Processing (1)
Recordkeeping	Integrated Recordkeeping (1) Business Math (1)	Integrated Recordkeeping (1) Elective
Data Processing	Integrated D/P (1) Business Math (1)	Integrated D/P (1) Elective
General Office Occupations (Clerical Practice)	Keyboarding (1) Clerical Practice (1)	Integrated Office Procedures (2)
Specialized Office Occupations (Stenography)	Keyboarding (1) Stenography (1)	Stenography (1) Integrated Office Procedures (1)

Electives

Computer Operation Computer Programming Word Processing	Legal Typewriting Legal Stenography Business Law	Machine Transcription Cooperative Work Experience College Accounting	College Data Proce Marketing Bookkeeping

APPENDIX D

STATUS OF ADVISORY COUNCIL RECOMMENDATIONS
WHERE PRIMARY IMPLEMENTATION TOOK PLACE DURING
JANUARY - JUNE 1982

Date of Motion	Response Center	RECOMMENDATION	Rejected; Set Aside	Accepted: Under Discussion	Accepted: Implementation Initiated (Some Activity)	Accepted: Substantial Activity	Accepted: Implementation Completed
11/5/81 Item 3.2	DHS	To expand vocational education programs in Boys and Girls High School			X.		
12/3/81 Item 2.3	Advisory Council	To establish a Youth Employment Commission				X	
3/4/82 Item 3.0 C	Chanc. Office	To request the Economic Development Council to assist in search for qualified on-loan executive from private sector to assist Council in its work with the Youth Employment Commission				X	
1/7/82 Item 2.3	Exec. Sec.	To establish Commissions according to occupational clusters				X	
1/7/82 Item 2.5	OCE	To encourage expansion of occupational education into intermediate and junior high schools				X	
2/4/82 Item 2.1	Chanc. Office	To support the Animal Care Commission's pilot project - Nature's Niche					X
2/4/82 Item 2.2	Chanc. Office	To fund a staff person in the office of the Executive Secretary (Handicapped Commission proposal)	Responsibilities outlined in proposal assumed by DSE personnel				

STATUS OF ADVISORY COUNCIL RECOMMENDATIONS . WHERE PRIMARY IMPLEMENTATION TOOK PLACE DURING JANUARY - JUNE 1982

Date of Motion	Response Center	RECOMMENDATION	Rejected; Set Aside	Accepted			
				Under Discussion	Implementation Initiated (Some Activity)	Substantial Activity	Implementation Completed
2/4/82 Item 2.2	OCE DHS	To review the Business Education Advisory Commission's recommendations re: curricula.				X	
2/4/82 Item 2.2	Policy Sub Committee	To call upon Commissions to formally prioritize their issues and concerns		X			
3/4/82 Item 1.2	DHS	To clarify the true status of admissions to vocational high schools		X			
3/4/82 Item 1.3		To clarify the relationship of school Advisory Commissions to the Council				X	
3/4/82 Item 1.4	Exec. Sec.	To investigate proposals for training of teenage home health aides (F/T) when there is a low demand for such workers					X
5/6/82 Item 2.2	OCE	To call for standardized curricula in occupational areas					X
5/6/82 Item 2.2	OCE	To establish minimum levels of competency as part of accreditation objectives			X		

STATUS OF ADVISORY COUNCIL RECOMMENDATIONS WHERE PRIMARY IMPLEMENTATION TOOK PLACE DURING JANUARY - JUNE 1982

Date of Motion	Response Center	RECOMMENDATION		Accepted				
			Rejected; Set Aside	Under Discussion	Implementation Initiated (Some Activity)	Substantial Activity	Implementation Completed
5/6/82 Item 2.2	DES	To issue Certificates of Achievement as well as diplomas. Certificates to indicate length of time student studies an occupational area and level of competency achieved		X			
3/4/82 Item 4.1	Chanc. Office	To strongly suggest that the Board of Education adopt the Sex Equity Commission's pilot support project proposal				X	
1/7/82 Item 2.1	DHS	To insure Advisory Council input in Borough Wide Planning Committees					X
Initiated 12/3/81 Item 4.0	Chanc. Office	To adopt a Statement of Procedure on all future Council/Commision input regarding vocational education (completed 6/3/82)					X
See above Item 3.2 b	OCE	To conjointly create a planning calendar with the Office of Career Education which insures Council/Commission input into VEA proposals currently in planning phase					X
5/6/82 Item 2.0	Advisory Council	To endorse the Educational Priorities Panel study, State Aid for Vocational Education: A Study in Inequity and to collaborate with and support the Board of Education position regarding the study					X

STATUS OF ADVISORY COUNCIL RECOMMENDATIONS .
WHERE PRIMARY IMPLEMENTATION TOOK PLACE DURING
JANUARY - JUNE 1982

Date of Motion	Response Center	RECOMMENDATION	Rejected; Set Aside	Under Discussion	Accepted: Implementation Initiated (Some Activity)	Accepted: Substantial Activity	Accepted: Implementation Completed
5/6/82 Item 2.0	Advisory Council	To establish an ad-hoc committee of Advisory Council members to meet with the New York State Regents regarding the findings of the EPP Study				X	
5/6/82 Item 2.0	Exec. Sec.	To prepare an additional rationale regarding the disadvantaged employment and training needs in order to strengthen the approach to the Regents in regard to State vocational education monies					X
6/3/82 Item 2.1	Advisory Council	To change various by-laws of the Council regarding officers and terms of office					X
6/3/82 Item 2.2	Advisory Council	To elect officers for the Advisory Council					X

This report includes relevant information secured from the three sub-committees of the Advisory Council, (Administrative, Policy, and Program), Advisory Council Minutes, Advisory Commission Minutes and Reports. It also includes recommendations made to the Board of Education's members and staff, action taken by the Board of Education, and pending activities.

Detailed supportive materials and appendices are available in the Office of the Executive Secretary of the Advisory Council for Occupational Education.

APPENDIX E

Work Experience Program Descriptions

1. Cooperative Education (COOP). The 69 year old COOP program is "the oldest established work experience program for high school students in the United States," states its flier. Serving 13,500 11th and 12th grade students in 168 COOP programs in 91 high schools, aggregate earnings totaled $20 million for 1982 from 3,500 private sector employers. Seventy-three of the programs were alternate week -- students work one week and are in the school the next; these are managed by the central COOP coordinator at the Board. Eighty-seven were part-time, with students working after school; these are run by school-based COOP coordinators. COOP is under the supervision of the Division of High Schools. Students are placed in entry-level jobs and paid at least the minimum wage. They get academic credit at the same time. Most placements are in clerical positions. There are few placements in data processing, and only a handful in jobs requiring technical skills. Many students go on to full-time employment with these firms after they graduate, although the retention rate seems to be dropping due to the economy. One bank used to retain 90% of its COOP students after graduation, and now keeps only 70%.

While wages are unsubsidized, there is a tax credit of 50% of the first year's salary given for firms which hire students on welfare (this used to apply to all students). Job development is aided by the COOP Board of Commissioners, which includes representation from IBM, Irving Trust, Macy's, and American Express. Most jobs come from "reorders" by companies that were pleased with the students. COOP is funded by tax levy monies.

Personal Growth Laboratories train students in employability skills, and preparation sessions give additional training in clerical skills.

2. The Joint High School Program of the New York State Employment Service sends professional New York State Employment Counselors to 46 high schools. Some are available to students full time, while others split their time among several schools. The school supplies a room and a phone and the state pays the salaries of the counselors.

In 1980-81, 22,000 students registered for the service, of whom 15,600 were referred to jobs and 13,644 actually placed. In some schools, all students seeking jobs are referred to the counselor; in others, the counselor is used for those students who are not college bound. "Our primary interest," says the NYS Employment Service Counselor director, "is the graduate who isn't going on to full-time education." The selection of schools to receive counselors is made jointly with the Board on the basis of the need of the student population. Nearly all counselors are in academic/comprehensive high schools rather than vocational schools.

Two supervisors do job development. In addition, six supervisors contact major employers to develop "multiple openings" for graduates. Supervisors visit counselors at the schools twice a month, and check on students at jobs twice a year.

Wages are unsubsidized and students do not get school credit. The program is supervised by the Bureau of Educational and Vocational Guidance.

3. Training Opportunities Program (TOP). In its second year of operation, TOP's purpose is to provide students with placements which use their technical skills, in an industry setting where training would take place on the state-of-the-art equipment th schools cannot afford. Providing opportunities for minorities and for women to enter previously male occupations is a major goal, and particular attention is to be given to the needs of bilingual and special education students. Wages are fully subsidized for the first six weeks, with the employer picking up at least 50% of the salary in the second phase. Students get academic credit, and job development is done by 30 job developers, who are primarily teachers. This year, of 1,200 applicants, 800 were placed in jobs.

4. Partners for the Advance of Electronics, Project PAE, is a work experience project for students at Westinghouse High School, under the joint sponsorship of the Board of Education and the Private Industry Council. A pilot project of two years length, funding was (is) provided by PIC, the Board of Education, CETA and the Edna McConnell Clark Foundation. Its purposes are "to prepare students for the world of work; to provide them with on-site job experiences working with up-to-date equipment and techniques; to improve linkages between the school and local industries; and to improve high school curricula, texts, teaching methods and equipment in technological areas." A documentation and evaluation of the project is available through the New York Interface Development Project, Inc.

5. Education Through Private Industry Cooperation (EPIC) is a project of EDCs Open Doors, originally begun with CETA funds. Located in three schools, EPIC is an after school program in two phases. In the first, Outreach, students survey local business both to determine the kinds of careers available and to do actual job development. At the end of this phase, students travel to major corporations in Manhattan; some of these firms were interested in hiring students,

6. A UFT collaboration with the Board of Education has proposed an "Employment Demonstration Project for Youth Sixteen to Eighteen Years of Age" which would provide employment services in 6-10 high schools, "with a long range goal of making this service available for all the schools." Clusters of high schools in four boroughs have been identified to facilitate job development. Target areas are Long Island City, Upper Manhattan-Bronx, and North Brooklyn. A data base retrieval system will aid assessment, matching, referral and placement.

but the youngsters from other boroughs were unwilling to travel to Manhattan to work. In the second phase, the students were placed in jobs, most of which were clerical.

7. Career Bridges is a non-paying work experience program in four high schools, sponsored by the Aviation Development Council and directed by a former Board of Education official. For ten weeks, students work in career placements four days a week, and spend the fifth day in school. Placements are in many industries, including aviation, banking, communication, commerce, hospitals, and social and cultural agencies.

8. The Cooperative Apprenticeship Program operates out of the Office of Cooperative Education. A second program providing technical placements, CAP, serves 150-200 students and is funded by VEA. Trade and technical areas covered include office machine repair, machinist, carpentry, food preparation, automotive repair, and climate control.

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APPENDIX F

TO: Advisory Council on Occupational Education

FROM: Advisory Commission for Sex Equity

RE: Recommendation for Funds to be Allocated to Sex Equity Initiatives in Occupational Education

DATE: February 25, 1982

I. Recommended Practices to Attract and Recruit Students for Nontraditional Vocational/Technical Programs *

Objective

To implement those practices necessary to increase admission of students into nontraditional vocational/technical education programs within the NYC vocational/technical schools and thereby reduce the extent of sex segregation in these programs.

Suggested Strategies

a) junior high school and intermediate schools can begin to prepare students to make "nontraditional" choices by: thoroughly familiarizing students with high school program options and application procedures; inviting high school representatives from nontraditional programs to speak; sponsoring a nontraditional career fair; incorporating non-stereotyped career options into course curricula;

offering an exploratory course secuence; developing support services for students showing an interest in nontraditional areas.

b) high schools can: develop bias-free recruitment materials; revise school's description in the High School Directory to encourage nontraditional enrollments; conduct aggressive outreach to feeder schools and parents emphasizing the opportunities for students in nontraditional jobs and careers; rid admissions tests and interviews of sex-bias; develop programs such as 9th year exploratory courses; modify existing courses so they are less separatist in their appeal; focus staff development on promoting sex-bias free activities about appropriate jobs for men and women; and develop nontraditional work opportunities for students through COOP-ED, TOPP, etc.

II. A Program of Support Services for Students in Nontraditional Programs in NYC's Vocational/Technical High Schools *

Objective

To provide those support services necessary to maintain students in the nontraditional vocational courses within the New York City Vocational/Technical high schools and thereby reduce the attrition rate of girls and boys in nontraditional programs.

Suggested Strategies

a) morale "enhancement" - e.g. counseling by leader, peer group discussions, role model presentations;

b) presentations by those struggling to succeed or who have already succeeded in the trades;

c) information exchange;

d) counseling of individuals - e.g. regarding academic deficiencies, appropriate processes and procedure, etc.

III. Establishment of a System for the Planning and Evaluation of Meaningful Sex Equity Components in VEA and Other Proposals.

Objectives

The criteria currently used to evaluate VEA proposals for appropriate sex equity goals and activities are ineffective and inadequate.

There is a need for a clearly defined qualitative and quantitative system for measuring and evaluating the sex equity component in proposals prepared by New York City Board of Education. This same type of programmatic approach should also be applied to all phases of planning of the components and activities described in the proposals.